JUNE 15, 1994
VOLUME SEVEN NUMBER SEVENTEEN
SEVEN DOLLARS

CIO

THE MAGAZINE FOR INFORMATION EXECUTIVES

COVER STORY

Growing In Style

The Recipe For Coping With Success

ALSO INSIDE

Are Desktop Assets Adding Top Value?

Boston Chicken Inc.'s Blaine Hurst

AN INTERNATIONAL DATA GROUP PUBLICATION

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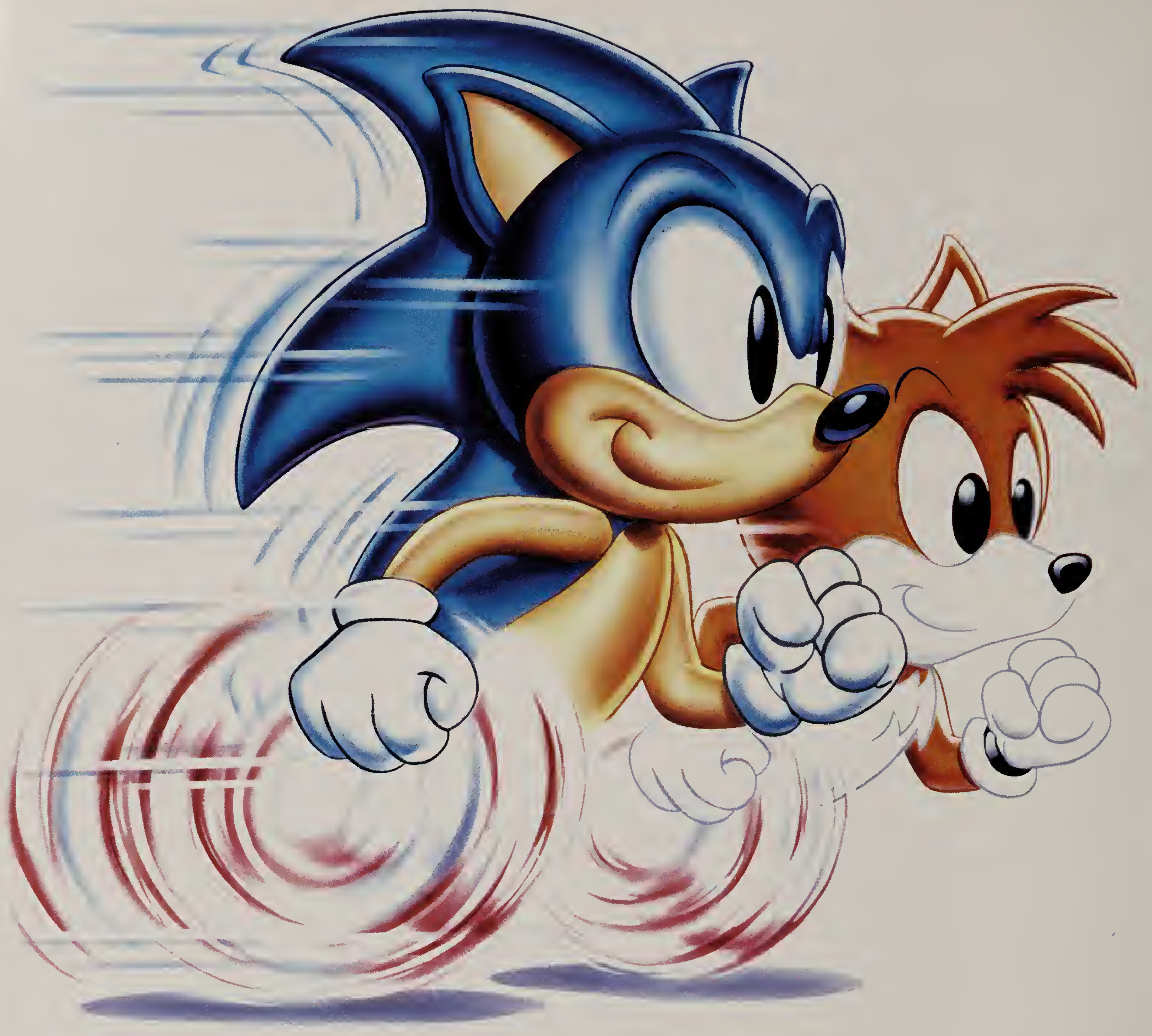

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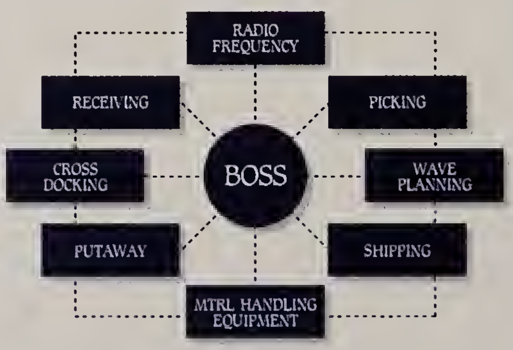

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CIO

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COVER STORY

MANAGING CHANGE **42**

Growing Pains and Gains

You probably won't turn up your nose at the sweet smell of success, but if you're not prepared to manage rapid growth you may miss some opportunities in the rush to expand.

By Anne Stuart

No more Chicken Little **42**
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The PC Payoff

Distributed computing brings with it many benefits, but the risks to data integrity are real. Some observers question whether completely ungoverned computing freedom exacts a long-term price too steep to pay....

By Carol Hildebrand

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Commercial Flight

Aerospace has traditionally been a defense-related industry. Now an increasing proportion of its customers are commercial and foreign organizations. Like those in other industries whose markets have shifted beneath them, aerospace companies must change the way they do business.

By Richard Pastore

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IT for Two

Mergers and acquisitions mean that two formerly separate organizations must begin to function as one. Banking is one industry where it's often up to IS to make that happen.

By Megan Santosus

Taking IT to the bank
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INSIGHTS: ZERO GRAVITY TRAINING

Like astronauts before they venture out into space, employees entering today's dizzying business environment will need help adapting. Until traditional educational institutions recognize and meet this need, companies will have to assume the responsibility themselves.

By Marc Demarest and David Rodgers

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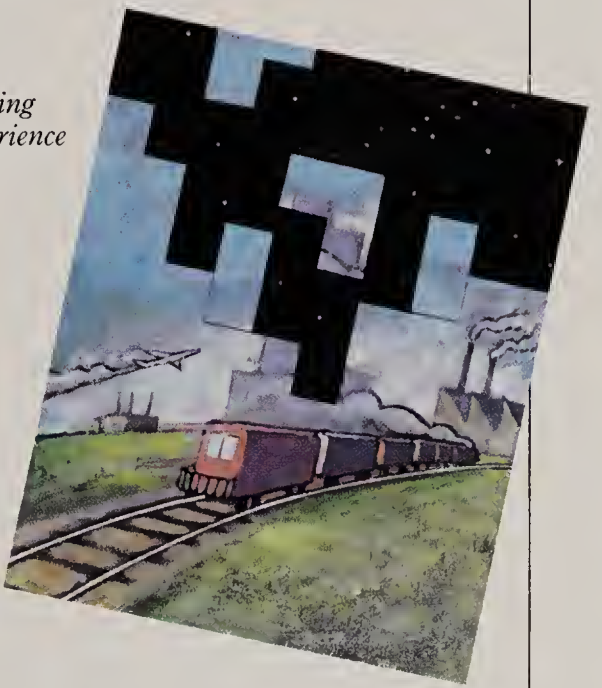
STATE OF THE ART: GOING PLACES

An effective logistics operation does a lot more than keep the trains and trucks running on time. Companies looking to make improvements in this area are turning to a variety of software tools for help.

By John Edwards



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CIO CONFIDENTIAL: A LOCKED ROOM OF ONE'S OWN

It's a variation on the unifying effects of life in a foxhole. When people have long-standing differences, forced proximity can be a healing balm. Sometimes, leadership means locking the door and letting the fur fly constructively.

By Walter F. Dyle

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LETTER FROM THE EDITOR

Surely, fast-paced growth would be considered a serendipitous happenstance for most any business. Well, yes and no. Growth requires change and the ability to operate in an ambiguous environment. In our cover story ("Growing Pains and Gains," Page 42), Senior Writer Anne Stuart explores how companies manage their growth curves and how IT contributes to the action.

Boston Chicken Inc. and Foxwoods High-Stakes Bingo and Casino are typical of companies on a growth roll. CIOs at these companies often don't have time to design IT architectures with neatly fitting pieces. They have to let the information environment evolve. In a growth scenario, however, keeping the organization flat and taking a flexible, modularized approach to technology implementation may be the earmarks of successful IS management. Most of all, executives at these fast-changing firms find success in enabling employees to communicate in a timely way with one another and with customers.

This ability to communicate rapidly throughout the organization creates its own ambiguity. In a story that raises the potential chaos of unmanaged information in a dispersed environment, Senior Writer Carol Hildebrand examines the concerns of IT executives attempting to balance the benefits of responsiveness with the comfort and security of control (though maybe "coordination" is the better concept).

In Hildebrand's article, "The PC Payoff," on Page 30, observers concede that users of information in distributed environments could theoretically be creating different data sets on every desktop, and this can produce inefficiency and chaos. However, most also agree that a focus on rigidly controlling end users is atavistic and self-defeating. So far, there doesn't appear to be a resolution of this ambiguity, but many CIOs see effective distributed information management as a looming challenge. As one researcher puts it, for 30 years systems have been built from a systems-development mind-set and not from the perspective of enterprisewide knowledge management. Stay tuned.

When it comes to telling it like it is about life as a CIO, the *whole* truth is sometimes the first casualty of organizational politics. But what if you could say anything you wanted from the relative safety of anonymity? This month we inaugurate CIO Confidential, a free-fire zone that we expect to be a regular forum for candid observations, by W.F. Dyle, our pseudonymous working CIO, on the complex challenges of the IT leadership role. In the column (see Page 80), Dyle turns a sardonic eye on cross-functional politics and the effort to get IS and business folks working from the same page by getting them into the same room. We're eager to know what you think of CIO Confidential. Share your thoughts with *CIO* Executive Editor Lew McCreary at 508 935-4618, or by E-mail to ciomag@mcimail.com.

Marcia Blumenthal

PHOTO BY WEBB CHAPPELL

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Editorial Offices CIO Publishing Inc., 492 Old Connecticut Path, P.O. Box 9208, Framingham, Mass. 01701-9208 (508) 872-8200, FAX (508) 879-7784. Printed in the U.S.A.
Subscriber Services (800) 788-4605, FAX (508) 872-0618.
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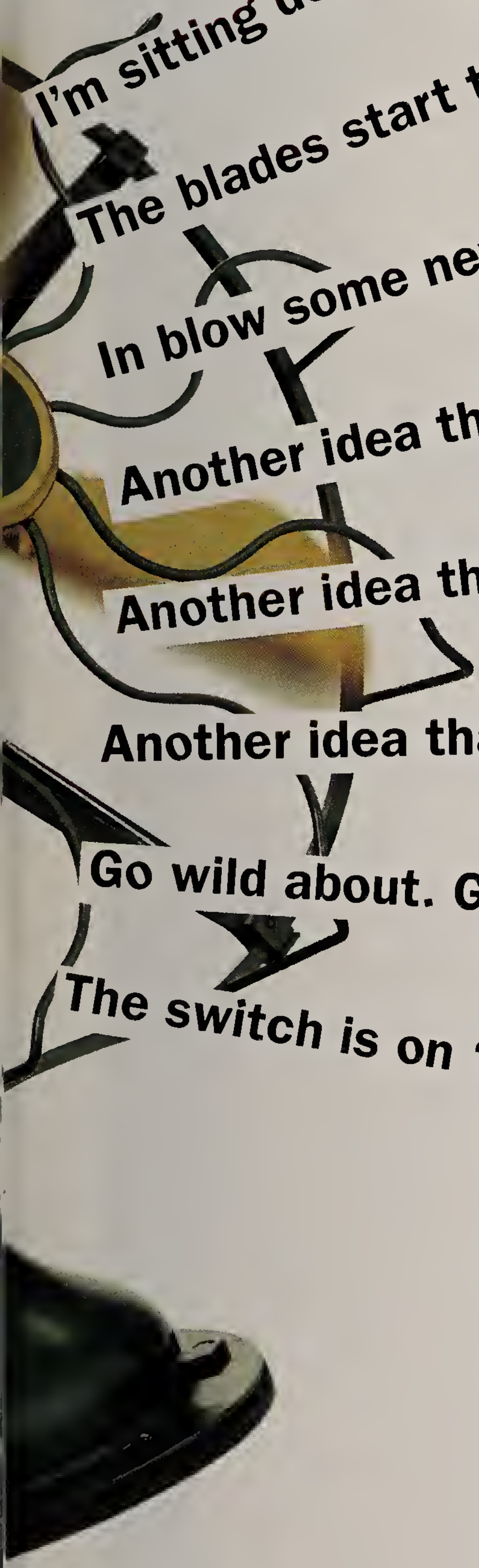

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EDS

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In this issue, Senior Editor Richard Pastore reports on the massive changes taking place in the aerospace industry and their impact on the role of IS (see "Commercial Flights," beginning on Page 52). Shrinking defense budgets, increasing global competition and industry consolidation are among the many factors forcing these companies to essentially reinvent themselves. The emerging mandate for many aerospace CIOs is to build an IT infrastructure that supports new business opportunities in nontraditional, commercial markets.

In reading this story, it occurred to me that the challenges facing U.S. aerospace and defense executives are not unlike those that concern top management in all industries today. As the world becomes the business playing field and as traditional markets become saturated, repositioning and reengineering are essential for long-term success.

Regardless of the industry in which you compete, I believe it's time for information executives to seize the opportunity to help their companies navigate through massive change. While the impetus for change may vary from industry to industry, it's clear that a customer-focused IT vision that enables the organization to compete effectively in the world economy is a prerequisite for survival.

P.S. Please join renowned management expert and author Peter Drucker as we explore "IT Economics: Business Value & Profit Maximization" at the next CIO Perspectives conference, to be held Oct. 23-26 at La Paloma in Tucson, Ariz. To ensure your participation, please call us at 800 366-0246.

Coming In CIO

Special Issue: Changes in Retail

Though it has begun to shake off the stupor brought on by the recent recession, retailing will never be the same, many experts say. As consumer habits shift, it must reinvent itself with help from IT. Among the trial balloons retailers are launching is video shopping, an aggressive venue that threatens to catch IT infrastructures off-guard. Meanwhile, merchants are choosing decision-support mechanisms to help beleaguered merchandise planners make better decisions. In addition, they're looking for schemes to promote loyalty among increasingly fickle customers. In this special issue, *CIO* will also feature a discussion of technology and retail trends with the catalog queen who founded her $195 million empire in her kitchen 43 years ago.

Special Issue: The CIO-100

In our seventh annual CIO-100 issue, we will examine organizations that are exemplars of 21st-century management. Given that "there may be no long-term sustainable advantage to companies except the ability to organize and manage," according to Edward E. Lawler, director of the Center for Effective Organizations at the University of Southern California, we will honor companies that are pushing the management envelope. Big or small, these companies are reengineered, fast, flat, nimble and close to their customers, and their employees are empowered knowledge workers. These are learning organizations—the new, the hip, the future.

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TRENDLINES

DRIVE-TIME SAVERS

Businessfolk may spend all day mulling the implications of the information highway, but when they finally leave the office they have little information about the highways that take them home. A consortium of public and private organizations aims to take some of the mystery out of commuting by supplying traffic updates and other services over wristwatches, portable computers and car stereos.

SEIKO'S MESSAGEWATCH *will deliver traffic data to drivers in transit.*

The Seattle Consortium for Intelligent Vehicle Highway Systems Technologies was recently awarded $5.5 million in state and federal funding to test a high-speed broadcast system for disseminating data to users en route. Drivers will be able to receive information on traffic accidents, road construction, highway-lane volumes and mass-transit routes and schedules. More-personal services include paging; an automated ride-share program; and data on weather, sports and ski conditions.

The consortium plans to enhance the IBM portable PC, the Delco Electronics car radio and the Seiko Telecommunications Systems MessageWatch with an embedded data-receiver chip that allows them to receive and display information from FM subcarrier radio signals. Data will be transmitted via Seiko's High Speed Data System networking protocol.The test begins this year and runs through 1996. ▬

DOWNSIZING DILEMMA

THE COST IS CLEAR

Productivity doesn't come cheap. While alternative computing architectures may do many great things for your company, reducing IT costs probably isn't one of them.

Popular opinion holds that distributing work off mainframes is economical as well as efficient. But a recent report from the Gartner Group in Stamford, Conn., demonstrates that the opposite is frequently true. Downsizing will usually increase costs, the report declares, pointing

EVERYTHING NEW IS OLD AGAIN

It's the kind of thing you have to deal with only once in a lifetime—unless you happen to be Methuselah. When the calendar flips to Jan. 1, 2000, computers all over the world will crash if they can't distinguish between the 20th and 21st centuries.

The problem involves the way dates were programmed back in the early days of automation. For reasons of economy and efficiency, every date was expressed as a combination of two letters or two numbers—04/25/67, for example. Under this system, the two-digit date for the year 2000 becomes 00, which older programs, running on mainframes, will interpret as 1900.

"The potential for administrative and economic upset, disarray and even chaos" is enormous, according to Bill Goodwin, founder of 2000AD Inc., a Brooklyn, N.Y., consultancy that specializes in millennial management issues. "Purchase orders will expire before they are generated; accounts payable and accounts receivable will exist in a time warp....People will die before they are born," warns Goodwin. He cites a company where managers determined that the date change would cause 18 of its 104 systems to fail. Nationwide, he estimates, such failures could cost as much as $75 billion to fix.

Instead of taking to the streets shouting, "The end of the world is nigh!" CIOs can outsource their millennial problems: 2000AD works to desensitize corporate mainframes to the turn of the century. The company can be reached at 718 643-8425.

By the way, we are aware that Methuselah lived only 969 years. So hold your letters, please. ▬

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to the hidden spending that occurs when decentralized business-unit investments in technology are not recorded in an IS chart of accounts.

To demonstrate the complexities of calculating the total cost of ownership (TCO) of alternative computing architectures, Mark Hess, vice president of Gartner's transition strategies service, compares a mainframe-centered, online application environment—wherein change is centrally managed—with a distributed-workstation environment. When an application is upgraded in the mainframe environment, the new version is centrally implemented so that every user has immediate access to it. "But in a distributed-workstation environment, installing the new application on, say, 1,000 workstations is a lot more labor-intensive, and the risk of disruption is greater," says Hess.

Other costs of management and control become less visible with downsizing—they may even seem to vanish. However, as with application upgrades, the labor expense for such IS functions as backup/recovery, security, storage and network management are simply redistributed. And that redistribution generally introduces incremental costs. "The more that computing is downsized, the more that capital-intensive glasshouses give way to increasingly labor-intensive configurations," says Hess. "Users should account for this in comparing TCOs."

But looking at cost alone is not enough. According to W. Thomas Shipley, vice president of the Financial Strategies group, the total comparative functionality (TCF) of mainframe-based data centers versus those of alternative platforms and architectures must also be analyzed. "TCF should consider users' starting points, define the functionality the enterprise needs and compare the cost elements of alternative solutions using TCO techniques," Shipley says.

Once you've done the analysis and determined that downsizing will actually cost more, an obvious question arises: Is it worth it? And if your answer is yes, how do you manage those costs as they spread outside the IS organization?

"We believe the benefits of distributing computing power throughout the enterprise are usually enough to mandate the transition despite the increased costs," Hess says. The justification derives from instant, transparent access to corporate information, resulting in enhanced customer service, quicker time to market, streamlined staffs and better ways to solve business problems. "The biggest benefit will be the chance to reengineer business processes that would be impractical to automate using conventional technologies," says Hess. For more information, call 203 964-0096. ▬

BEGINNING THIS SUMMER, *the National Amusement Network will link game terminals in Kansas and Ohio arcades. Eventually, more than 10,000 U.S., Canadian and Mexican terminals will be linked.*

PHOTO BY TONY STONE IMAGES / ARTHUR TILLEY

A WIDER PLAYING FIELD

You've vanquished all comers at "Virtual Racing." You've trashed the local competition in "Mortal Kombat II." Are there still oceans left to swim, mountains left to climb?

For the jaded arcade habitue, the answer is yes. Players will soon be able to match skills with their counterparts in other localities thanks to a network that will eventually link more than 10,000 game terminals in the United States, Canada and Mexico. The network is a joint effort of the National Amusement Network Inc. (NANI) and EDS Corp., which recently announced the launch of a two-state pilot.

Beginning this summer, players in Kansas and Ohio will be able to compete in individual games or tournament-play operating machines connected by telephone lines. The system is flexible enough to allow arcade operators to offer whatever types of competitions they like, and NANI will offer national tournaments, with a variety of prizes distributed on a redemption basis.

EDS will provide systems development and integration, operations and network management. The company also brings to the venture client/server and multimedia technologies that will be used to develop and link multimedia terminals for enhanced game play, as well as a variety of other applications. NANI, which was established to manage the network's business activities, is owned by the Amusement and Music Operators Association, which represents the coin-operated amusement industry, and TVphone Inc., which holds patents on the specifications of electronic games of skill. ▬

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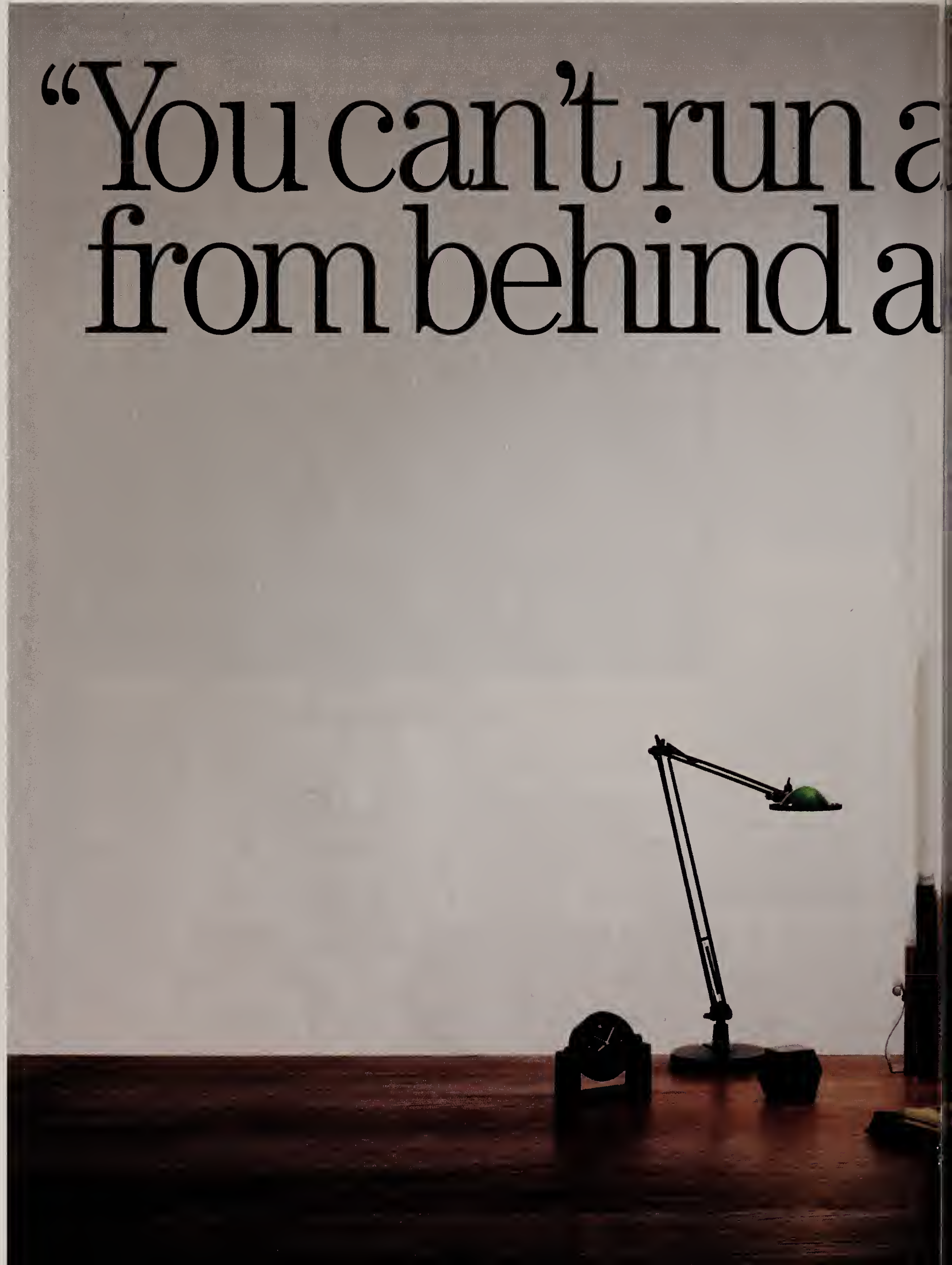
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TRENDLINES

If You Broadcast It, They Will Come

A few months ago, following the example of an online discussion conducted on The Whole Earth 'Lectronic Link, we asked readers to send in suggestions for ways to fill up the 500 television channels that broadcasters and cable companies keep threatening to inundate us with. Here are a few of our favorites.

The Shoplifter Channel: "Video from store-security cameras."—John Krieger, Westinghouse, Savannah River Site

The Channel Surfers' Channel: "A live telecast will show two to three seconds of each channel, continually scrolling through all 500 channels and eliminating the need to surf yourself. A real timesaver."—Dave Richgels, Middleton, Wis.

The Couch Potato/Peeping Tom Channel: "The channel could show other couch potatoes sitting in their recliners with their remotes, beer and chips. After midnight it would switch to an adults-only channel as people go to their bedrooms and switch on their TVs there."—Joe Smith, Amarillo, Texas

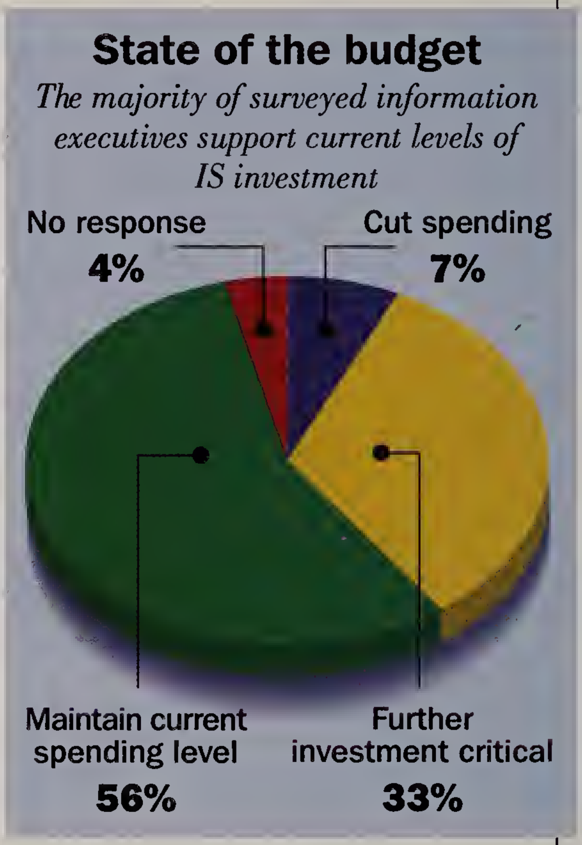
The School Bus Channel: "Tapes taken from bus-monitoring cameras throughout the country. Children's fads and fashions could circulate much faster."—Linda Ashley, Norwell, Mass.

The Facial Hair Channel: "Twenty-four-hour-a-day beard growth." A presumably related channel would track the development of "fungi, mushrooms and spores from sprouts to massive growths."—Robert A. Kessel, Riverdale, N.Y.

EXECUTIVE SURVEY

Support in High Places

Recognizing that you get what you pay for, one-third of Fortune 500 senior executives would like to raise their companies' spending on IT, according to a recent study from Nolan, Norton & Co. in Boston. That's not too surprising when you consider that more than 60 percent of the 100 CEOs, CFOs and COOs surveyed said their companies are receiving most or all of the benefits from their IT investments.



State of the budget

The majority of surveyed information executives support current levels of IS investment

Information technology is held in high esteem by most of the largest U.S. corporations, according to the study: Forty-four percent of respondents said IT was one of the most important factors helping their companies succeed, and 51 percent said it was one among many contributing factors. Indeed, technology is so near and dear to these high-powered senior executives that one-third guide and direct IT planning, while half review IT-investment decisions. CFOs were unexpectedly prominent among decision makers, with 26 percent involved in guiding and 47 percent in reviewing corporate IT investment.

While ideas about measuring IT success varied, most respondents said they look primarily at improvements in productivity and efficiency or at bottom-line considerations such as lower costs and increased market share. Improved customer service and decision support were also cited as important indicators of IT success.

For those concerned about shrinking IS budgets, the good news is that little sentiment emerged among respondents to shrink them further. Only 7 percent of the executives interviewed called for spending cuts, while 33 percent said further investment was critical to maintaining competitiveness, and 56 percent supported spending at current levels. The chief reasons respondents gave for continuing IT improvements were the need to keep up with technological changes, foster rapid delivery of useful data and help simplify employees' jobs.

Not surprisingly, reengineering business process-

ILLUSTRATION BY DIANE BIGDA

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es—cited by 42 percent of respondents—emerged as the most important step toward maximizing the benefits from IT investments. Additionally, 38 percent saw a strong need for IT to become more productive in the delivery of service. Under pressure to raise productivity and cut costs, the executives said they would consider purchasing IT consulting services to help them achieve these goals.

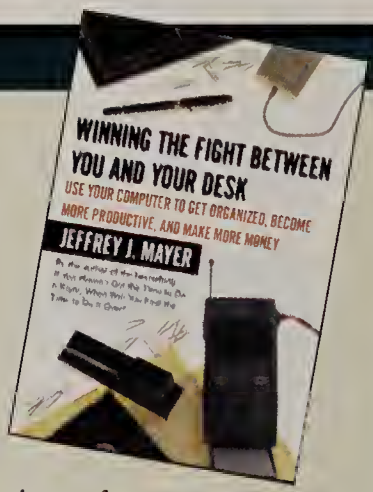
Respondents also expressed interest in developing their companies' IT knowledge (25 percent said there is a strong need) and improving their IT management skills. As for outsourcing, that trend may have peaked, the report suggests. Only 7 percent of respondents said they saw a strong need to outsource computer support and/or administration. For more information, call 617 723-8800. ■

NEW VENTURES

June is the traditional month for marriages, but at least two notable unions were announced last month in the computer and telecommunications industries. In one, Microsoft Corp. formalized a relationship with Texas Instruments Inc. to create a component-based approach to application development. Central to the plan will be open, scalable repository technology that will allow customers to create distributed applications that "merge the desktop with the enterprise," the companies say. They anticipate moving from the idea of a repository—a database that stores the structure of applications and their components—as a monolithic creature available only to large customers to something that is scalable to enterprises of all sizes. Products for this environment will be available in September.

Also joining forces last month were AT&T Corp. and Novell Inc. Their offering: AT&T NetWare Connect Services, a WAN infrastructure that will allow corporate customers to access public, commercial and private network services through a single connection. This "global network of business networks" will make available applications such as workgroup computing, messaging and electronic commerce. The new service, which is offered as part of AT&T's public data services, will make possible "virtual custom Internets" linking individuals to one another, branch offices, customers, suppliers, prospects and public information services. It will also enable mobile users to communicate with other networks and access applications and services. Implementation is expected to start in the fourth quarter; general availability is expected in the first six months of 1995. ■

OFF THE SHELF


WINNING THE FIGHT BETWEEN YOU AND YOUR DESK
USE YOUR COMPUTER TO GET ORGANIZED, BECOME MORE PRODUCTIVE, AND MAKE MORE MONEY
JEFFREY J. MAYER

WINNING THE FIGHT BETWEEN YOU AND YOUR DESK

USE YOUR COMPUTER TO GET ORGANIZED, BECOME MORE PRODUCTIVE, AND MAKE MORE MONEY

By Jeffrey J. Mayer
HarperBusiness
(New York), 1994
160 pages, $18

Jeffrey J. Mayer has groomed a neat career for himself as America's leading anal-compulsive. In two previous books, he scolded and exhorted busy people to adopt an assortment of clutter-management strategies designed to clear their schedules, their desktops and their minds of debilitating debris. This time Mayer has discovered computerization.

Now, it just so happens that a lot of very highly organized people are a teensy bit...well, the word rigid comes to mind. For these folks, being organized often becomes an end in itself; the more complicated and difficult the job of prevailing over disorder, the more well-protected they feel and, thus, the better they like it. But when it comes to actually getting things done, all that armor can be more hindrance than help.

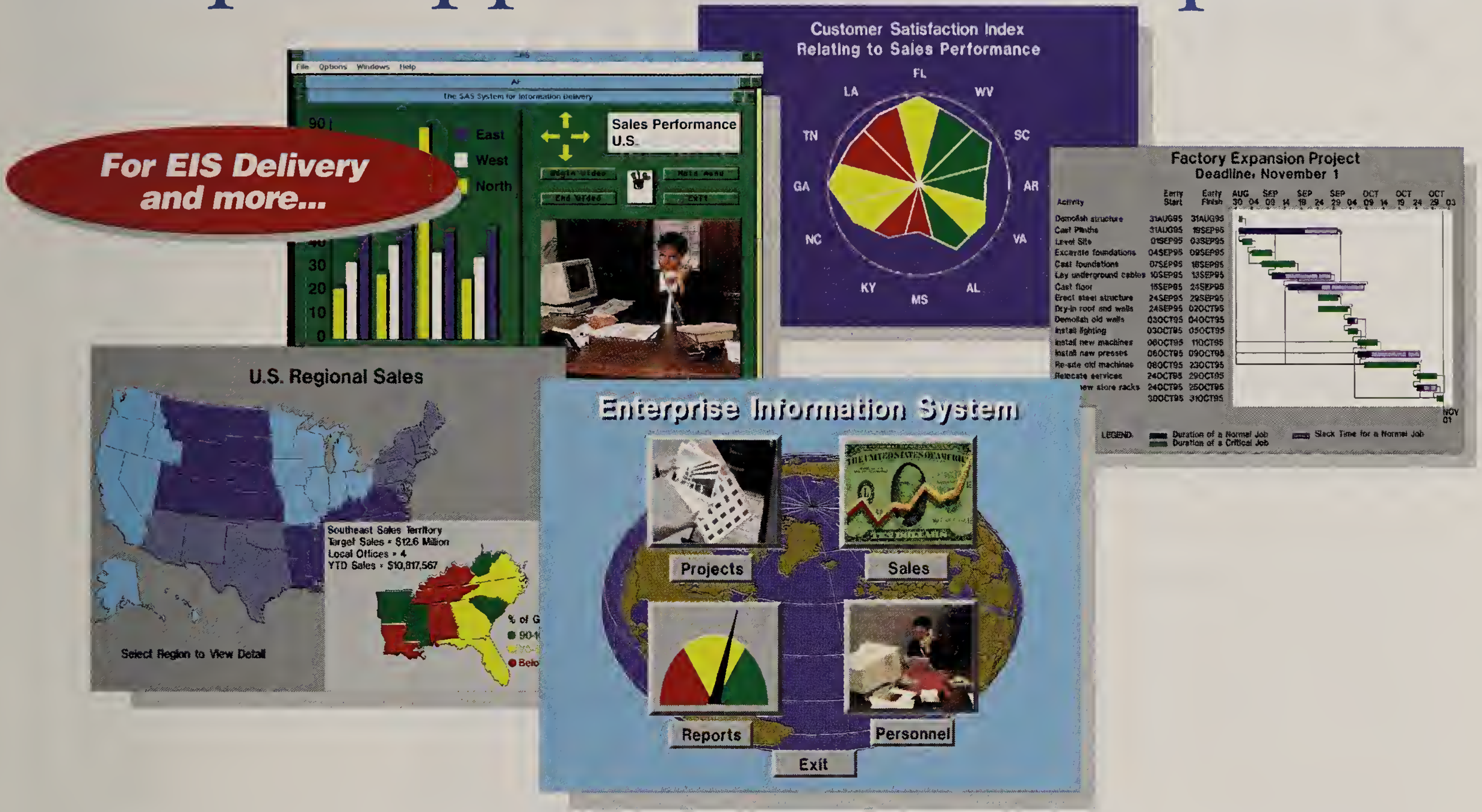
But Mayer is different. His goal is to simplify, and computers can help do that. Because, of course, Mayer—like any good keeper of paper lists—knows well the frustrations of recopying scraps of information from one calendar or to-do column onto another. Disorder may defy most efforts to tame it, but computers do have the virtue of being able to act faithfully and consistently in response to if/then instructions.

Mayer's book amounts to a fairly complete inventory of the state of the art in self-management. Besides standard productivity applications, he covers software packages that help in managing stress and in keeping fit. And there are sections on hard-disk hygiene, virus protection and system-performance enhancement.

Like many a zealous recent convert, however, history for Mayer begins roughly at the date of his own conversion. For example, he cites the introduction of Microsoft Windows as the seminal ease-of-use event, completely ignoring the pioneering contributions of Apple and others. He also hasn't sniffed out the groupwork trend and, so, fails to address software that aids in shared and collaborative work.

Other than that, *Winning the Fight* is a solid Round One bell for anyone wanting to go toe to toe with chaos. ■

Client/Server
Rapid Applications Development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Excavate foundations	04SEP95	09SEP95
Cast foundations	07SEP95	18SEP95
Lay underground cables	10SEP95	13SEP95
Cast floor	15SEP95	24SEP95
Erect steel structure	24SEP95	29SEP95
Dry-in roof and walls	24SEP95	02OCT95
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Zero Gravity Training

Like astronauts before they venture out into space, employees entering today's dizzying business environment will need help adapting. Until traditional educational institutions recognize and meet this need, companies will have to assume the responsibility themselves.

BY MARC DEMAREST AND DAVID RODGERS

"Progress is impossible without change; and those who cannot change their minds cannot change anything."
—George Bernard Shaw (1856-1950)

Fast companies, agile companies—every CEO wants one. A company that can change its fundamental structure and functions as its markets move, migrate and fragment. A company that is designed for its own continuous transformation.

Creating such a company has profound human-resources implications, not the least of which is the nature of work itself. Instead of jobs or careers, which are stable, definable affairs, the employees of the fast company will have assignments: short-lived, high-pressure roles that reach across traditional functional boundaries (finance, sales, manufacturing, marketing) and then disappear quickly. The ultimate goal of any assignment is to finish it—in effect, to put oneself out of a job. Employees' reputations are only as good as their last assignments, and their next projects will probably have nothing to do with what went before.

In many cases, companies will hire contract rather than permanent employees, engaged for the duration of a product-development cycle or the brief marketplace lifetime of a consumer product. But even permanent employees will function for brief stints in a variety of roles. Instead of moving up, they move across, down and around the company. Titles mean nothing, pay is linked exclusively to performance, and the central tenets of traditional human-resources management—career laddering and the distinction between individual contributors and management—disappear.

Will traditional sources of education—high schools, colleges, universities—revamp their focus and curricula to produce the fast-company-ready knowledge workers we need? Probably not. In fact, most colleges and universities are retrenching, reasserting their collective mission as cultural guardians—instruments for socialization—and increasingly rejecting the real and necessary link between education and knowledge work in a worldwide post-capitalist economy.

Practitioners of the library sciences are the exceptions that prove this rule; most are actively adopting new-age information-storage and -distribution technologies to improve their services and increase their accessibility to the user community. This encourages students to learn more actively—and interactively—than is possible with traditional instruction.

Across the globe, schools are each year producing fewer graduates capable of performing in knowledge-intensive work within today's unstable organizations. And these graduates are anticipating lifelong employment

ILLUSTRATION BY WARREN GEBERT

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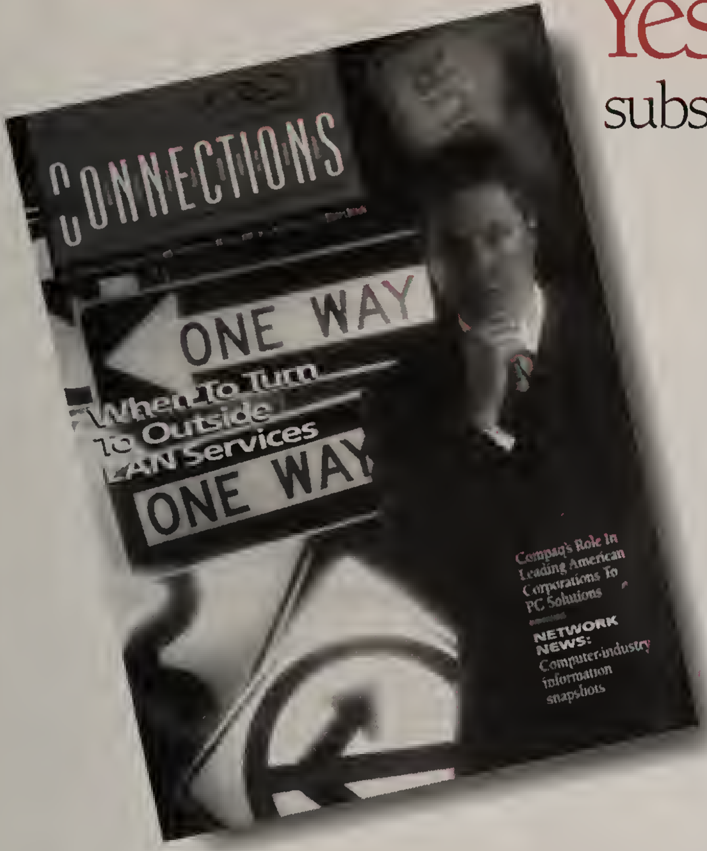
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COMPAQ

within a single discipline.

There are no viable sources of education that focus on preparing young people for assignments in fast companies, or for working lives as individual proprietors who contract their time and skills to a variety of organizations. Even the management schools have failed to revise their curricula to fulfill this need.

In Japan, companies have long provided "company universities" to ensure lifelong education for their knowledge workers. Similarly, U.S. organizations will have to address the looming education crisis themselves, and they ought to start now. The following process can help:

Define the educational crisis in your industry, and publicize it in your organization. Management—particularly the CEO and the VP of human resources—often confuses education with training, and a training department with a program for knowledge-based excellence. Just as often, education is seen as a professional prerogative, perk or means of empowerment rather than as the very real source of competitive advantage it will become over the next five years. To understand just how scarce highly skilled, highly motivated knowledge workers will be by the end of this decade, management has to examine the failure of American education in light of its own strategic plans and objectives.

Identify the core "success skills" in your organization's best knowledge workers. Your best knowledge workers are legends. Everyone knows them or knows about them. The human-resources department has probably never taken the time to find out why these people are so good at what they do. Do it now. Interview them. Uncover what they consider to be their core skills. It's a good bet that the skills have less to do with any university degree or course syllabus than with knowing how to learn, being flexible and not getting tied to a particular set of ideas. Starting with the top performers in the IS organization is a good strategy for ensuring that your organization's educational strategy is in place early.

Determine where those skills came from and who your best-bet suppliers of those skills are. It's likely that many of your best knowledge workers believe they learned their core skills in colleges and universities. Others will say they learned them on the job. Many won't tell you much at all about how they know what they know. Knowledge work is still very much a guild practice—a set of trade secrets—and the intervention of management can be very much like the labor-management confrontations of the early years of this century: Mutual suspicion reigns. Nevertheless, it's vital that you identify, as completely as possible, where your knowledge workers developed their competencies and how they're continuing to learn as they work.

The most important skills have less to do with any university degree or course syllabus than with knowing how to learn, being flexible and not getting tied to a particular set of ideas.

Reach out and partner with the few educational organizations that are producing knowledge workers with those skills. Educational institutions, whatever they may say in their mission statements about the value of knowledge for its own sake, and whatever their instructors may say in the classroom about the banalities of business, have a way of coming around when corporations approach them looking for partnerships. Most universities need good instructors, advice on curricula, supplies, equipment and public-relations assistance.

Once you've determined what you need in the way of a knowledge-worker educational program and who's producing good knowledge workers today, contact the administration, particularly the people in charge of corporate relations and the endowment.

Define a second-source strategy. Wherever your current high-value knowledge workers came from, chances are good that the institutions that produced them have already changed, or soon will. To ensure a reliable flow of competent young knowledge workers, you need a second source. This may be a private educational contractor; the education marketplace is becoming large enough to support tough-minded corporate educators who are focused on more than "a good learning experience" and "empowerment." Seek out these people. Share with them what you've learned about the kinds of knowledge-focused skills that are most useful to your organization. Ask them for a proposal.

Provide "new-age" information resources for knowledge workers. You will need to satisfy the appetites of your knowledge workers for current information. Establish widely accessible accounts with the leading electronic information providers. While entertainment software may fund the initial expansion of the information superhighway, it is business-relevant knowledge about customers and products that will spur its continued growth. Hire or retrain a librarian to be familiar with nontraditional knowledge sources. Take advantage of your competitors' training programs by encouraging professional networking through participation in local professional societies and working groups.

Taking these steps, companies can begin to meet the challenge of employee education in these turbulent times. Transformation will be continually demanded of all companies; the question is, will you aggressively redesign yourself to compete or be transformed out of existence?

In their current assignments, Marc Demarest is manager of the corporate architecture group and David Rodgers is vice president for emerging technology at Sequent Computer Systems Inc., in Beaverton, Ore.

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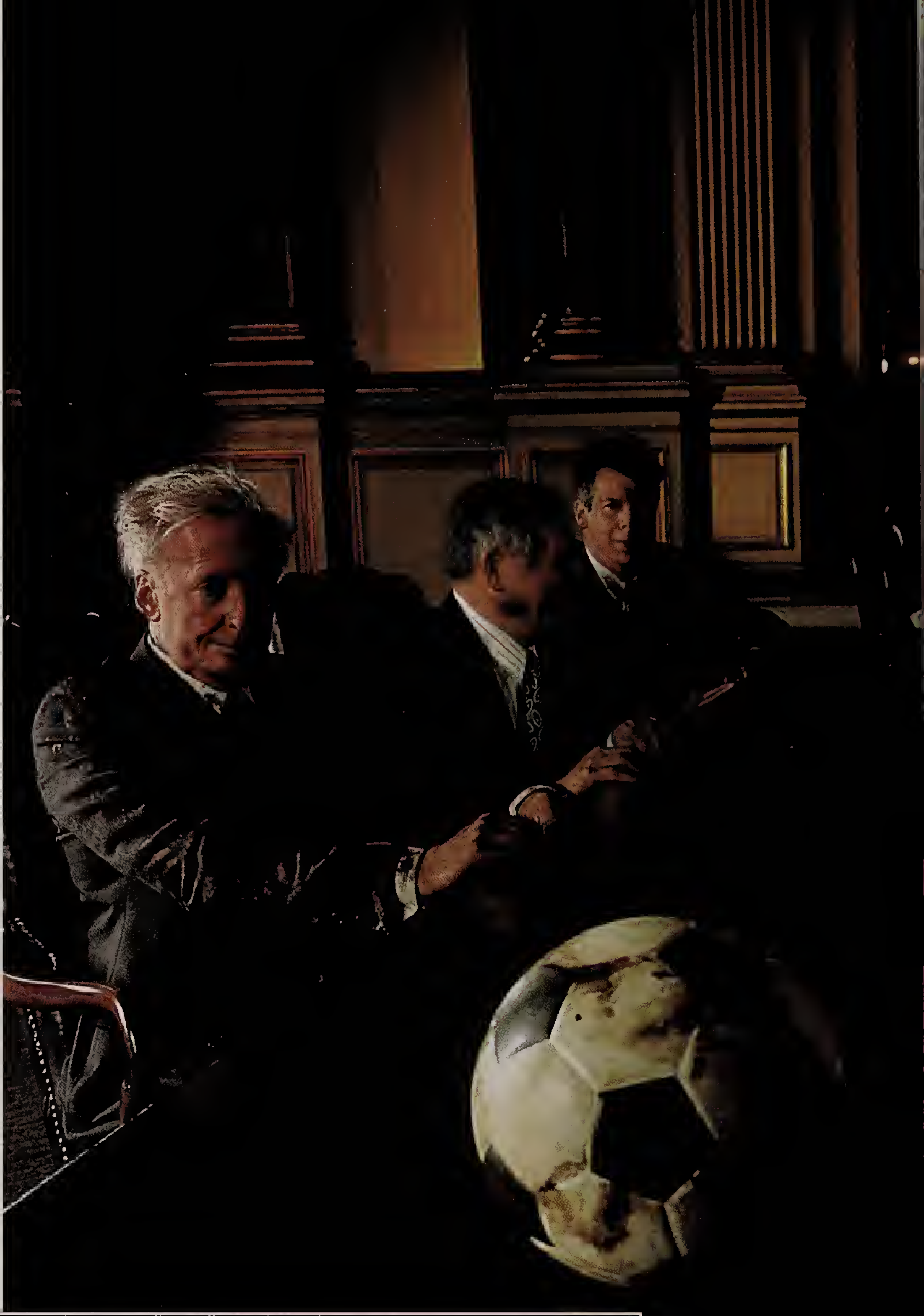

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GETTING A GRIP ON INFORMATION

The PC Payoff

BY CAROL HILDEBRAND

Four years ago, Hughes Space and Communications Co. was a textbook example of the wonders of distributed computing. Business departments at the El Segundo, Calif., satellite maker were full of empowered technology users creating independent applications and using that software to access multiple databases. However, says CIO Gary Osborn, unmanaged use of desktop technology also had disturbing side effects: Each department had its own set of data, and none of it matched.

STORYLINE

No blessing is ever unmixed. The same desktop computers that convey timely, relevant business information to and from the front lines of every modern organization also introduce a certain amount of chaos, ambiguity, wasted effort and outright error. But how can this possibly be a serious problem? After all, what's a little anarchy when compared with the staggering benefits of unfettered information flow? Still, the risks to data integrity are real, and some observers question whether completely ungoverned computing freedom exacts a long-term price too steep to pay....

"We would go to a meeting to solve some problem and spend most of our time arguing about who had the right data," Osborn says. "We had redundant data all over the place."

So when Hughes embarked on a reengineering project in 1990, the information process was a prime candidate for change. "It was obvious what we had done to ourselves," Osborn says. "We knew it was crazy."

In the era of client/server, many companies will find themselves in the same boat as Hughes did. When information access and computing autonomy are dispersed throughout an organization, the resource becomes much harder to manage with any degree of confidence. While the benefits of widely dispersed information—speed, flexibility, timely decision support, increased innovation, and better customer service and understanding—are unchallenged, there also are likely pitfalls.

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GETTING A GRIP ON INFORMATION

PC Councils or Information Councils

Larry Prusak, a principal at Ernst & Young's Center for Business Innovation in Cambridge, Mass., suggests that companies form cross-functional "information councils," such as those in place at Polaroid Corp., also in Cambridge. There, members from business disciplines, along with IS and corporate library employees, meet to discuss IS projects underway in business units. Subjects can range from technical-supplier problems to how to implement an interdepartmental project, according to Prusak. The councils give IS a more-realistic idea of how business units use information. "An IT-only model of information is usually a disaster," he says. "While [IS] may be good at system development, that has nothing to do with information."

If every desktop is a potential computing laboratory, some experiments will undoubtedly fail. The question is, how can one identify and learn from the mistakes? Also, absent the means to coordinate end-user computing activity, there will be inevitable duplication of effort. Conversely, unique hidden treasures that ought to be quickly and widely shared may remain hidden. And, finally—as happened at Hughes—the availability of corporate information for ungoverned use by all hands will put data integrity at an increased risk.

In companies pursuing aggressive distributed-computing strategies, these are types of issues that senior executive managers need to address. How, under conditions of wide access and autonomy, is information to be managed within a company?

At Hughes, as a first step in redesigning the information process, business-unit executives worked with the IS organization to examine their business processes and identify the kinds of information that play a key role in each process. The business executives then defined the data structure to best fit their business processes, as well as decided who was authorized to update information and how it should be done. In addition, the team designed measurements for data quality, which Osborn defines as the timeliness of the data, its format, accuracy and relationship to other data.

Today, the IS organization at Hughes is the caretaker of a centralized database of "official" data and responsible for measuring data quality and giving reports to the user community. Users can access the information freely within the formats set up by non-IS senior management. If they download data to manipulate for their own use, that's fine, Osborn says. "They just aren't allowed to change it and give it back to me. That's bogus data."

Organizations are slowly becoming aware of the issue, but not everybody agrees whether the problem is important enough to merit action—or even whether it's a problem at all. What could possibly be wrong with a situation that results in happier end users and more-competitive companies? Not only that, but there are no obvious red flags that might appear on a financial report.

Putting up with a certain amount of replicated data, for example, is part of doing business in the 1990s, says David Sims, director of strategic information networks at Schlumberger Ltd. in Sugar Land, Texas. "What does it hurt, as long as [employees] get the job done and have smiles on their faces?" he asks. At highly decentralized Schlumberger (whose headquarters are in New York and Paris), employees must meet yearly management objectives for their jobs. As long as they do so, Sims says, it really doesn't matter how they achieve the goals.

Peter G.W. Keen, chairman of the International Center for Information Technologies on St. John, U.S. Virgin Islands, says that the old centralized IS model was very efficient but not very effective at getting critical information to the business units. While he concedes that today's desktop model is incredi-

2

GETTING A GRIP ON INFORMATION

Technology-Transfer Groups

Large companies can establish a technology-transfer group to make sure smaller, departmental innovations don't slip through the cracks. Basically, a technology-transfer group is a centrally located group within IS with a mandate to seek out home-grown applications and spread them throughout the company if deemed worthy. Management consultant Neal M. Goldsmith, president of Tribeca Research Inc. in New York, says that during his tenure as director of corporate technology strategy at American Express Co.'s corporate headquarters, his technology-transfer group helped him solve one of his most enduring issues: how to successfully spread good ideas across six independent subsidiaries.

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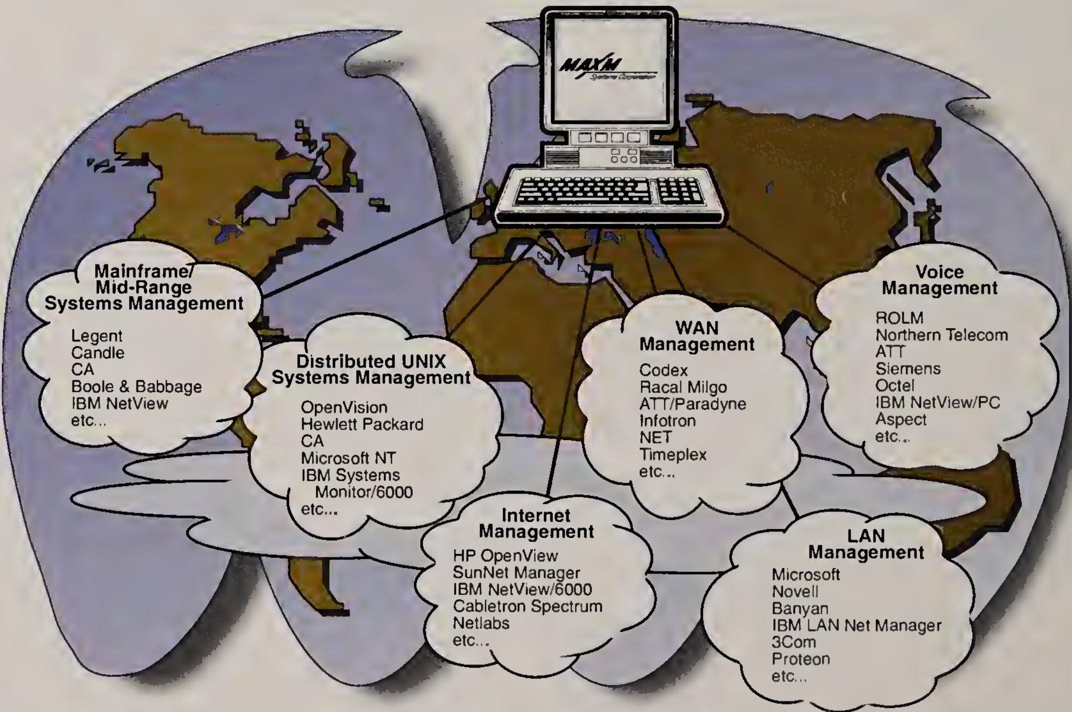

they affect your users. All the alarms and error messages, from virtually any component in your operation, are integrated into one consolidated view. And because MAXM can share management data with IBM's NetView and Sterling's NetMaster management systems, you get an integrated view of SNA and non-SNA environments alike.

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GETTING A GRIP ON INFORMATION

Sharing Through The Network

Chase Manhattan Bank NA in New York uses Lotus Notes groupware to support a concept that CIO Craig Goldman calls Centers of Excellence. The centers are groups of hand-picked people who share ideas globally across the network. Through informal and formal efforts, employees take inventory of other business units' applications, post interesting applications on company bulletin boards for other departments to download, use an ad hoc grapevine to notify different areas of the bank of new initiatives and globally review business-systems plans. Taken with the formal planning process that each business unit does in conjunction with IS, most redundancy is eliminated, says Goldman.

bly inefficient, it also happens to be very effective. If the price is a little replicated work, so what?

"Companies are better off with five very bright people having the same ideas than not having the resources to have those ideas, or having meetings spending 30 percent of the time deciding who's going to control the idea," Keen says. "Now, we want more innovation faster."

Still, some experts say, companies should pay attention to the unmanaged information growth that often lies behind decentralized end-user computing. A February 1994 Forrester Research Inc. report predicts a dismaying long-term outcome of this trend, warning that "an unfettered flow of data into the multidatabase world of client/server risks data uncertainty and, eventually, business malfunction."

John Halloran, a managing partner at Nolan, Norton & Co., a management consultancy in Boston, says that IS and the end-user community must agree on clear "domains of responsibility" to avoid informational chaos. "You need a management structure in place," Halloran says, "not to control information but to coordinate it." Without some management of departmental databases and applications, he warns, "you'll have anarchy."

While the prospect of a company filled with faulty data is daunting, it's clear that PCs and enterprising end users are here to stay. Now, says Bobby Cameron, a senior analyst with the software strategic service at Forrester, it's up to executives to weigh the costs of what their brave new decentralized computing world is doing to information.

Most companies will conclude that the business benefits of a speedy time to market, for example, outweigh the need for centralized data-control mechanisms, which slow processes. Without those controls, a certain amount of informational replication and contradiction is bound to creep onto departmental databases. Therefore, part of the burden of decentralized computing involves arriving at a conscious decision about what level of data ambiguity can be tolerated within a company.

This will vary from business function to business function, according to Cameron. For example, he points out that an institution such as a bank needs precise financial information on the status of accounts and can tolerate zero ambiguity. But the bank's internal marketing department, which periodically downloads mainframe data to a client/server database, may be able to deal with information that is not always fully in sync with other databases. Having resolved the ambiguity question, executives must then learn how to manage information rather than control it.

"Control is a short-term advantage but a long-term drag on productivity," says Neal M. Goldsmith, president of Tribeca Research Inc., a New York-based technology-management consultancy. "You always have to slow things down to be able to watch."

Keen favors something he calls "coordinated devolution." In other words, he says, "power to the people! But for heaven's sake, keep us informed of what's going on."

While keeping top management informed sounds simple, anybody who has forgotten to tell his colleagues of a rescheduled meeting knows how difficult it is in practice. Coordinating the information and projects of hundreds of independent business units cannot be done down to the desktop

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GETTING A GRIP ON INFORMATION

Information Mapping

One fairly simple project is to create a company information map, says Ernst & Young's Larry Prusak. The idea is to create a visual map that lets people see where pockets of information expertise lie, and in what form. For example, if somebody at Ernst & Young wanted to know about retailing, an info map might tell her that there is a database about retailing in the Timbuktu office. Prusak says that American Express recently did a skunk-works information map of company data centers that garnered senior-management applause.

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level, says Craig Goldman, CIO at Chase Manhattan Bank NA in New York. At Chase, each business unit has an IS liaison who works with it to prioritize and measure larger projects against business objectives; so IS has a good grasp on projects over a certain dollar value. However, says Goldman, smaller initiatives are done within business units, and IS may not be aware of these.

While this may lead to some duplication of effort throughout the company, it is the level of ambiguity that his organization accepts. Goldman does have some practices in place to catch smaller innovative projects that might otherwise fall through the cracks, including Chase's online Centers of Excellence, where employees share their ideas and trade applications across the network. (See suggestion 3, Page 33.)

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GETTING A GRIP ON INFORMATION

An Anthropological Study of Information

Another of Larry Prusak's recommendations is to study intensively how a department collects and uses information. For example, Hewlett-Packard Co. sends medical-equipment developers out to spend time with doctors around the clock in order to find out how they use equipment in their daily activities. To fully understand which information and sharing and dissemination methods will work, Prusak says, it's necessary to absorb the learning style of a group. "How do they capture information from outside? Do they prefer learning face to face? You need to observe them and watch what they do."

Both industry experts and vendors often point to information sharing through workgroup software and networks as a way to avoid redundant work efforts and to link innovative pockets of users. But, according to Stephen S. Roach, principal and senior economist at New York-based Morgan Stanley & Co., companies must undergo massive culture shifts to usefully employ such technologies. "The corporate hierarchy is changing, but it's still segmented," says Roach. "There's a potential for information gridlock because individuals are not used to moving beyond their own territory."

Compounding this problem is the "What's in it for me?" factor—also known as human nature. "If something is valuable, humans don't share naturally—not wealth, not sex and not information," says Larry Prusak, a principal at Ernst & Young's Center for Business Innovation in Cambridge, Mass. "What they do is hoard it." That means that business managers face the frustrating problem of having valuable information in their departments and users who don't want to learn how to share.

One way to get users to share information across a company is to change the incentive structure. At most companies, incentives are set up to reward business units for performance as a unit rather than as members of a company. So, there's little incentive to contribute to another business unit's strong performance. Goldman says management at Chase combated resistance to sharing by changing incentives. In the information systems group, he says, "we're measured basically on what IT does for our business and customers and not what it does for individual business units."

One such incentive is the Excalibur awards, a companywide prize that annually honors employees whose projects exemplify the concepts of teamwork, customer focus and respect for others. "It's the most important award we give our employees," Goldman says.

Such a fundamental cultural change often comes as part of a companywide reengineering effort. Reengineering the information process itself is an oft-overlooked but vital part of such an overhaul. Information is the one common thread that knits together different business processes at a company, making it a hot candidate for reengineering, says Paul Rostick, director of research at Mentor Group Inc., a business and computer consultancy in Wayne, Pa. "Why not reengineer the process on which all the other processes rely?" Rostick asks.

The imperative to reengineer the information process strengthens, he says, with the realization that the process currently does not work at most companies. This stems from 30 years of building systems from a technology and systems-development mindset rather than from the perspective of companywide information management. Thus, companies have ended up with islands of desktop information that do not communicate with one another—a condition that Rostick terms "disintegration" of information.

One thing is clear: When companies try to learn just what is on all those PCs, they'll come up with a big question mark because, in most cases, nobody really knows. "It's unmanaged," says Ernst & Young's Prusak. "One of the great myths of the information age is that if you have desktop machinery, you no longer need information expertise."

Prusak believes that although information and technology are intimately linked, it's nearly impossible for one person to keep up

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GETTING A GRIP ON INFORMATION

Document Management on Servers

Bob Walker, director of corporate IS at Hewlett-Packard, has put a document-management system on the network that cuts down on the glut of information that can clog E-mail systems each night. The central server updates local servers with white papers, policy changes, accounting documents and task-force work updates. Users can pull the information off a local server on an as-needed basis. "Instead of pushing unwanted information at people through E-mail, we've tried to go with a pull-oriented approach," Walker says. "If people need the information, they know where it is."

with the rapid pace of change in both arenas. "Really trying to understand the effective use of information in a large organization is a separate world from understanding technology," Prusak says. "They're intertwined, but they require different methods and approaches."

He recommends that organizations create the position of "knowledge officer," whose duty would be to work closely—"like a DNA strand"—with a company's technical officer. He adds that the knowledge officer could also act as a statesman to help a company learn how to share knowledge.

Martyn Holland, CIO and North American and worldwide vice president at Tupperware in Orlando, Fla., has just put together a job description for an information resource manager. The position will be affiliated with the end-user communities but will report to IS. The information manager will be responsible for the integrity of information, while end users will retain control of the data itself. While Holland does not want this individual to "roam user departments with a baseball bat" to keep control, he or she will keep management informed of duplications of effort.

Barring the creation of an info "czar," the logical experts on information are its owners, usually the line-business executives. But all too often business executives relegate information management to the CIO—chiefly because IS departments long ago learned the importance of data integrity and have considerable experience with it. However, most experts warn that while CIOs may make good data coordinators, most are too technology-oriented to understand how to manage information on an enterprisewide level.

One company that has given information responsibility to its business executives is United Parcel Service of America Inc., based in Atlanta. Big Brown's information management was mapped out in the early 1980s, when the company rebuilt its information systems from scratch, using the PC as the primary building block. According to Senior Vice President of IS Frank Erbrick, the company has tapped IS to control data integrity on its enterprisewide systems, but business executives control the way data is defined. So when a billing-department employee enters information into the billing database, he must do so within the strict definitions set up by the CFO. This means that the CFO has defined what information is important to his own department and how that data is configured—for example, the billing-department employee may be required to name accounts in a particular manner.

Erbrick, on the other hand, is in charge of ensuring that the central data files adhere to the definitions set up by business management. So, if that same financial department wanted to access information to do an independent billing analysis, the users would not get access to the live files. Instead, Erbrick would give them "mirror" files that they can manipulate at will, leaving the official files clean.

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GETTING A GRIP ON INFORMATION

Personal Software Agents

Consultant Goldsmith proffers an idea whose time, he thinks, has come: "How about a software agent, like Mosaic, whose job is to electronically monitor other departments for innovations and new applications? It's bound to occur to somebody."

"Data is sacred, and you have to think of it in those terms," Erbrick says.

Prusak believes more companies should take a leaf from Erbrick's data-management book. It is clear, he says, that some management is necessary, whether exercised by business executives, IS or the user community itself. Empowered end-user enthusiasm may be contagious, but companies ignore the proliferation of business-unit knowledge at their own risk. And while risky business may be catchy, it is seldom profitable.

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GROWING PAINS AND GAINS

You probably won't turn up your nose at the sweet smell of success, but if you're not prepared to manage rapid growth, you may miss some opportunities in the rush to expand

BY ANNE STUART

A **FEW YEARS AGO,** even some Bostonians had never heard of Boston Chicken Inc. Today, in many communities, it's as familiar a name as Wendy's or Pizza Hut. If you haven't yet seen the chain's deli-style stores, with their display cases of colorful comfort food and rows of rotating, juicy brown birds, chances are you will. Soon.

Since 1985, the rotisserie takeout chain has mushroomed from a single outlet in a Boston suburb to a flock of about 300 coast to coast. And the company, now based in Naperville, Ill., plans aggressive expansion, with up to 150 more store openings scheduled by year's end.

Boston Chicken has become well-known on Wall Street, too, but not for homemade mashed potatoes or pot pies. The plucky company made headlines last November, when its initial NASDAQ public offering shot up 143 percent, from $20 to $48.50, the biggest opening-day leap in two years.

That put Boston Chicken "on the radar screen," says President J. Bruce Harreld, who credits the company's meteoric growth to innovative management and IT as well as filling a market niche between fast food and home cooking. "Sales jumped. Our credibility went up immensely. People almost everywhere have heard of Boston Chicken." The company turned a profit in 1993 for the first time, earning

BLAINE HURST: *Growing large by being small.*

PHOTO BY MARC BERLOW

$1.6 million on $42.5 million in revenues as compared with a $5.8 million loss the year before.

Since its splashy stock debut, Boston Chicken has soared, opening store after store, acquiring 84 Roy Rogers restaurants for conversion and popping up on most lists of companies to watch. But that bounty brings new challenges. Executives acknowledge that keeping pace with expansion is a constant scramble. Like their counterparts elsewhere, they're always checking to make sure they don't bite off more than they can chew.

Consultants call this balancing act critical to growing a business. Leaders of successful organizations—mature companies experiencing sudden prosperity as well as skyrocketing startups—can't just sit back and enjoy the ride. To keep growth going, they must manage it.

"Growth for growth's sake is the rationalization of a cancer cell," says James Brock, professor of economics at Miami University in Oxford, Ohio, and author of *The Bigness Complex*. "Size doesn't solve all problems; in fact, it may create them."

Nobody knows that better than Blaine Hurst, Boston Chicken's vice president of IS, who has watched his plate grow steadily more full. After a Chicago investment partnership acquired the majority of Boston Chicken's stock in 1991 and 1992, the company migrated from Massachusetts to an office park west of Chicago. As the company grew, so did its information needs. Initially stuffed into the company's one-story headquarters, IS quickly expanded into several spaces nearby, including a Holiday Inn down the road.

Exploding IS needs was one reason Boston Chicken decided to fly still farther west, to a new headquarters under construction on a 12-acre site in Denver. So urgent are the company's space demands that executives convinced developers to halve the time estimate for building their new 60,000-square-foot headquarters; they expect to begin moving this summer.

Meanwhile, Hurst's IS staff has been adding Lotus Notes installations daily, requiring additional Compaq Computer Corp. servers about every four weeks, collecting daily sales data, keeping field personnel plugged into headquarters, and testing a touch-screen customer-satisfaction computer in several stores. Hurst has also launched IntelliStore, a management system that enables any in-store device to run any in-store application. If a point-of-sale terminal crashes, for instance, the manager could run the cash drawer from a back-office PC. "That's the ultimate in flexibility," Hurst says. A fall release will add a Nintendo-style interface and new inventory-, labor- and payroll-data functions.

A fast-track business can threaten its own future if executives don't shift into neutral to consider long-term needs, goals and strategies.

By increasing local control and flexibility, executives hope to keep Boston Chicken close to its customers as expansion continues. "This helps us grow large by being small," Hurst says.

He acknowledges that it's a challenge to keep it all running seamlessly at the speed of light while reaching for the future.

"I have efforts now to make sure we don't hit the wall in six months," says Hurst, previously national director of the Navigator System Series at Ernst & Young. "The one thing I don't want to do is go to Bruce [Harreld] and Scott [Beck, the CEO] and say, 'You can't open another store, because we can't support it.' "

HITTING THE WALL, or the ceiling, is just one obstacle high-growth companies may face on the way up. "The transition from a small to a medium-size company is painful under any circumstances, and if it's very, very fast, it's worse," says Lisa Weiss, senior consultant for the information and telecommunications group at Arthur D. Little Inc. in Cambridge, Mass. "In a small company, people tend to have a lot of their knowledge in their heads" rather than on paper. But when things start moving fast, "you have to take all these individual islands of expertise and standardize them." While that may improve organization, it could also dampen the innovative, entrepreneurial fire that forged the company in the first place.

J. BRUCE HARRELD: *In addition to promoting an entrepreneurial, activist spirit, "we're really disciplined."*

Often, founders themselves fall by the wayside as their companies take wing. Some can't delegate. Others are brilliant at starting companies, mediocre at maintaining them. Once their companies take off, so do they—to the next challenge. Ulti-

PHOTO BY MARC BERLOW

mately, such departures may be necessary for corporate survival, but the short-term disruption can stunt growth.

Then there's burnout, which consultant Robert Drazin defines as "a decision to grow too fast." Entrepreneurs thrive on challenges, but even they sometimes exceed their limits. "Sometimes the eyes are bigger than the stomach," says Drazin, who is also an associate professor of organization and management at Emory University's Goizueta Business School in Atlanta. Meanwhile, lower-level employees spend days grappling with growth and nights catching up on regular work—until they run out of gas and quit.

A fast-track business can threaten its own future if executives don't shift into neutral to consider long-term needs, goals and strategies, consultants say. But timeouts can be tough: One consultant compares it to trying to repair a race car while competing in the Indianapolis 500. And companies may fear that cutting production or turning away customers will only benefit the competition. "The company down the street might be out of business in two years because it didn't stop and take a long-term look," Weiss says of such a scenario, "but right now it's bringing in all the customers."

Often, IT bears much of the responsibility for continued prosperity. But IS managers in high-growth organizations simply don't have time to design a comprehensive architecture of neatly fitting pieces. Even if they did, it's likely to become obsolete within two years, says Ra'ad Siraj, an Arthur D. Little senior consultant in Cambridge, Mass.

Instead, successful managers typically take a patchwork approach, adding pieces in response to new growth or business needs. "The architecture is going to have to evolve rather than being planned completely and implemented piecemeal," Siraj says.

THAT'S WHAT'S HAPPENED at Foxwoods High-Stakes Bingo and Casino in Ledyard, Conn. The Mashantucket Pequots, a 300-member Native American tribe, opened what's billed as the Western Hemisphere's largest casino in February 1992, and it hasn't closed since. The glittery complex pulls in upward of 15,000 visitors daily; its casino, bingo parlor, hotel, theaters, rides, shops and restaurants are projected to bring in more than $400 million this year. Employment has more than tripled, from 2,300 on opening day to 8,350 in April, making it one of the state's largest employers. And the game has barely begun: Expansion plans call for bigger gaming areas, more parking, an office tower, golf courses, a museum, a monorail and possibly a theme park.

While planning began in the mid-1980s, "we didn't start MIS until 1992," says Senior Vice President of Administration Bruce Kirchner, who compares running Foxwoods to chasing a runaway horse. "We haven't caught up, and I don't know if we ever will."

The initial IT phase reflected the casino's top priorities: customer satisfaction and security. The organization implemented a data network that handles everything from 3,200 slot machines to a top-secret surveillance system. MIS Director Al Zorner says the network, which consultants have called one of the most fault-tolerant outside Wall Street, is about 90 percent integrated. "A conscious decision was made to focus most of our energy toward networking and use PCs as the horsepower," he says.

Currently, Zorner is developing a multimedia division for efforts ranging from animation, which will be used in advertising, to virtual reality, for use in the company's entertainment offerings. Eventually, he hopes to run the entire 2.5-million-square-

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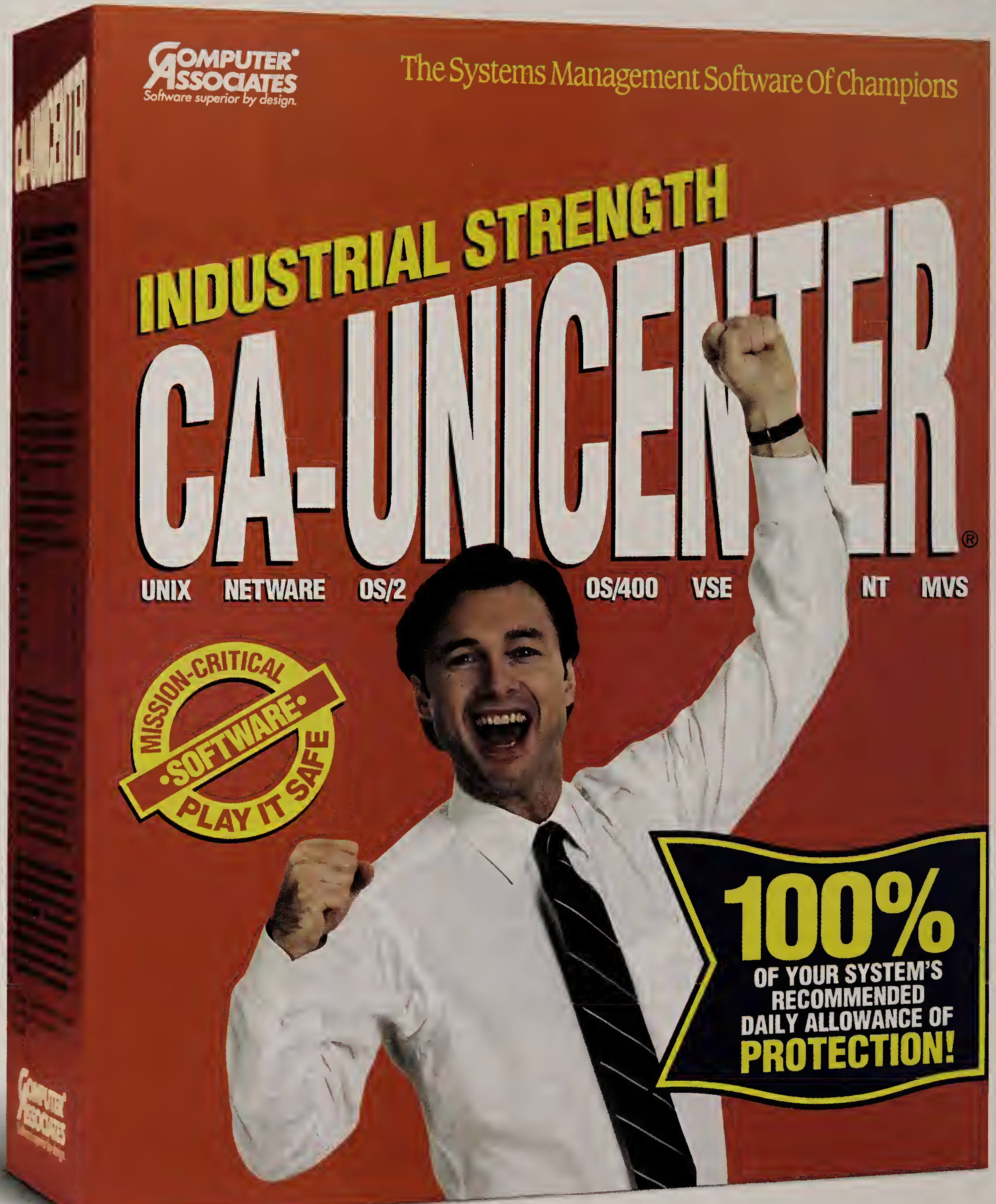

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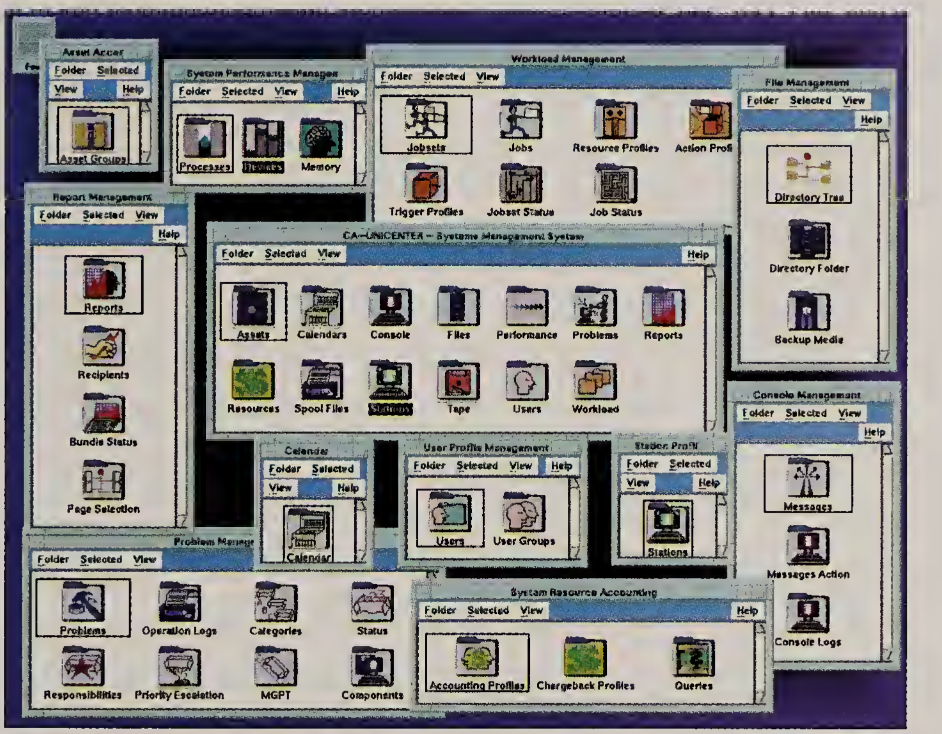

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Way to Grow

Consultants say growing companies can take several steps to prevent being strangled by success:

- **Step back to see the big picture.** Insulate senior managers from day-to-day work so they can focus on growth, says Robert Goodman, assistant professor of business at the University of Wisconsin in Madison. Or establish regular times for strategic planning. Or assign someone to assess future needs and track new developments.
- **Define objectives.** Establish long- and short-term goals, set priorities and develop programs to meet them.
- **Develop a statement of purpose.** Communicate senior managers' commitment in a companywide document, says Arthur D. Little Inc. Senior Consultant Lisa Weiss.
- **Get staff support.** Sell employees on change by addressing their concerns and emphasizing anticipated benefits. Provide glimpses of the future with visual tools or prototypes.
- **Forge business-IS partnerships.** Make sure both understand core competencies, priorities and business processes and will cooperate to reach growth goals.
- **Consider subdividing.** Become a network of small units, suggests Todd Zenger, assistant professor of organization and strategy at Washington University's Olin Business School. Individual units can offer stronger incentives, track performance better and retain a small-company look and feel while continuing to grow.
- **Isolate high-growth areas.** Establish a distinct entrepreneurial enclave to keep a key product or division from bogging down in the bigger bureaucracy, says Robert Drazin, associate professor at Emory University's Goizueta Business School. Example: General Motors' Saturn plant.
- **Move quickly.** Avoid strategies that take years to bear fruit. Get momentum going immediately with low-effort, high-benefit activities, Weiss says. Even major projects can be carved into manageable chunks; Weiss says General Electric implemented a 10-year plan in six-month segments.
- **Keep IT fast and flexible.** "Emphasize fast-track IT planning rather than trying to cross every T and dot every I," says Ra'ad Siraj, an Arthur D. Little senior consultant. Opt for plug-and-play architecture. Consider outsourcing some functions.
- **Evaluate, evaluate, evaluate.** Keep monitoring changes and responses; change and respond accordingly.

–A. Stuart

foot complex from a single location.

But Foxwoods isn't betting on every technology. "We do not have E-mail," Zorner says, adding that he opposes it because backlogged files could slow down other systems.

IT has also evolved in stages at American Skandia in Shelton, Conn., a young financial-services subsidiary of the venerable Skandia Insurance Co. Ltd. of Sweden. Founded in 1988, American Skandia quickly jumped to seventh place among the top annuity providers in the independent broker-dealer market and 15th overall. Sales have doubled annually, reaching $890 million last year. "This year, we're shooting for $1.3, $1.4 billion," says Joel Morris, CIO of American Skandia Business Services Corp. (a sister company that supplies service functions to American Skandia).

After Morris joined the company in September 1992, he and other executives tried to write a business plan looking five years into the future. "As with any progressive company, the future turned out to be tomorrow," he recalls wryly.

Over the next nine months, he replaced the company's dumb terminals and scattered PCs with a Novell Inc. NetWare LAN. But the company continued growing, and so did its processing requirements. As the first 65 users logged onto the LAN, Morris was already planning its expansion. "We were already out of capacity," he recalls. By the end of 1993, the larger LAN served 200 users; by the end of 1994, it will serve more than 250.

Morris has equipped the network with Microsoft Corp.'s Foxpro, Excel and Word for Windows; Lotus Development Corp.'s 1-2-3 and cc:Mail; database systems from Borland International Inc. and Oracle Corp.; and Intel Corp.'s Faxability. He is also testing a user-friendly Brock Control Systems Inc. telemarketing package; a FileNet imaging system allows the company to electronically store more than 30,000 contracts for variable annuities. In addition, Morris says, the organization recently adopted fiber distributed data interface (FDDI).

CONSULTANTS SAY it's critical for business and IS to work together to develop and carry out corporate goals. At Boston Chicken, the new management team first established "market partnerships" with stores in the field. Under those arrangements, the parent company contracts with a group of investors, or partners, to run all stores in a particular metropolitan area rather than relying on many competing franchisees.

Boston Chicken's headquarters, or "support center," handles accounting, payroll, customer feedback, recipe development, promotions, IS and more, letting partners focus on stores and employees. Currently, the support center employs about 140 people full time, roughly 20 percent of them in IS. To stay lean, the company relies on consultants and contractors ranging from chefs to software developers.

Internally, Boston Chicken's organization is as flat as Chicago's western suburbs, with few formal departments. Instead, interdisciplinary process teams work on specific projects, each starting with a firm charter. Teams work fast: Projects last four months or less from inception to completion. The IntelliStore team wrapped up its project in 65 days. "We seem entrepreneurial and activist, and we are," says Harreld, a former Kraft General Foods Inc. vice president and CIO. "But underneath all that, we're really disciplined."

> **"As with any progressive company, the future turned out to be tomorrow."**
>
> *–Joel Morris*

Executives wanted constant contact between the support center and field staff, including contractors, attorneys, partners and store managers. Having key personnel out of contact can block progress on critical efforts—such as picking up a valuable real-estate parcel—or prompt people to barrel ahead too fast. "If you're gone for a day, it's an eternity. A lot can happen," Harreld says.

To stay in touch, executives use Lotus Notes, voice mail and faxes; Harreld says satellite or cellular technology may be in the company's future. Any employee or partner can log into the company's databases to contribute ideas or suggestions and track progress on projects.

To remain close to the public, the company electronically logs comments phoned into a toll-free customer-service number. By cross-referencing key words, officials can determine whether one area gets a disproportionate number of complaints about, say, a rude cashier or bland chicken-noodle soup.

JOEL MORRIS: *American Skandia's processing requirements are growing with the company.*

PHOTO BY KENT HANSON

With projections calling for 1,500 stores by the turn of the century, Boston Chicken's biggest challenge will be keeping its focus. Says Harreld: "When you're growing this rapidly, you have to keep your eyes on the core things and do them well."

THAT MAXIM APPLIES to fast-growing mature companies as well. But unlike startups, established organizations may find they have to shrink first. That was the approach taken by Bausch & Lomb of Rochester, N.Y. During the mid-1980s, the diversified company embarked on a planned-growth campaign by training its sights on what research indicated were its top opportunities, including vision and personal-care products. To narrow its focus, the company sold off several other product lines, including some that had been doing well. "Wall Street didn't necessarily understand what we were doing, especially when we had a $600 million company that went down to a $300 million company before we started back up," recalls Barbara Kelley, vice president for public affairs.

Then Bausch & Lomb set out to grow its core businesses, investing heavily in contact lenses, sunglasses and its Sensitive Eyes eye-care line and moving into oral care, skin lotions and products for an aging population. In the past few years, the company created Clear Choice, a clear, alcohol-free mouthwash, and acquired the Curel and Soft Sense skin-lotion lines, Miracle-Ear hearing aids

BERT DIPAOLA: *"The divisions' job is to manage growth, not spend a lot of time reinventing technology that already exists."*

and several dental products. Meanwhile, executives divided the centralized company into entrepreneurial, highly autonomous units, promoting its new vision both inside and outside the organization. These days, the $1.9 billion company, which already does half its business outside the United States, is moving aggressively into emerging markets such as Venezuela, China, India and Indonesia.

Meanwhile, Bausch & Lomb's top IT priority has been to ensure that its 17 U.S.-based divisions, 34 international manufacturing and marketing operations and any future acquisitions can communicate uniformly while maintaining their independence. "Their job is to manage growth, not spend a lot of time reinventing technology that already exists," says Bert DiPaola, staff vice president of information management and technology.

DiPaola, who moved to that job from the company's international division three years ago, first streamlined and standardized communications among the company's diverse, far-flung units. "Bausch & Lomb needed a standard way to talk to itself. Each division has to ride the Bausch & Lomb highway," DiPaola says. To build that highway, he implemented standardized data transmission using Sprint and Infonet, AT&T worldwide videoconferencing, Lotus Notes groupwork capabilities and cc:Mail to link employees, customers, suppliers and others.

Bausch & Lomb also created an executive systems committee to look further down the road. The committee, which includes IT representatives from each unit, formulates strategy, sets standards, monitors emerging technologies and updates IS strategy annually.

No matter what pains successful companies experience, the growth that causes them is still something devoutly to be wished. Ira Feinberg, managing director of consultancy Nolan, Norton & Co.'s New York office, put it this way: "It's a nice problem to have." CIO

PHOTO BY FOREST MCMULLIN

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PREPARING • FOR CHANGE •

Commercial Flights

Aerospace has long been a defense-related industry. Now it increasingly caters to commercial and foreign customers. As in other industries whose markets have shifted beneath them, aerospace companies must change the way they do business.

BY RICHARD PASTORE

It's five minutes to liftoff on the first scheduled flight of the 21st century. The 30 passengers, mostly seasoned Pacific Rim business travelers, pay scant attention to the flight attendant's safety instructions as they leaf through newspapers and copies of *CIO Singapore*. Their helicopter ascends on schedule, bound for Bangkok.

THUMBNAIL

Industry: Aerospace defense sector

Primary Products/Markets: Aircraft, satellites, missiles, space vehicles

Industry Revenues: $140 billion worldwide (source: Andersen Consulting)

Number of Players: Multiple thousands

This type of commercial passenger chopper is on the drawing board today at at least one U.S. aerospace contractor. Its success will depend on how well the company and its IS group transition into new commercial markets and learn to compete globally while salvaging a share of the defense business. These challenges

FORCES OF CHANGE

Defense Cutbacks: U.S. military orders shrink with the end of the Cold War and pressures to reduce federal spending.

Impact: To augment lost defense income, aerospace manufacturers must push into commercial and international markets.

Consumer Demands: Commercial customers are more sensitive to price and delivery delays and want more product variety and smaller volumes than the U.S. military. Smaller, more-nimble competitors in commercial and foreign markets add to the pressure.

Impact: Aerospace manufacturers must revamp cost structures and operations to profit from low-volume orders. They must also offer more-attractive pricing and be more responsive. Global operations must be implemented and fine-tuned to compete effectively with foreign firms.

Consolidation: Major manufacturers are merging to find cost-efficiencies and protect or bolster market shares.

Impact: Combined companies must collapse systems, procedures and physical facilities to ensure operating costs will be less than the sum of the individual firms.

ILLUSTRATIONS BY JAMES YANG

I.S. ACTIONS

Implementing EDI and just-in-time systems to enable agile, low-cost manufacturing, which will help maintain profit margins on lower-volume commercial orders.

Testing possible standards like ATM for use in globe-spanning infrastructures.

Investing in data-communications systems and common development tools that permit electronic co-location in lieu of physical co-location.

Designing common MRP and purchasing systems that accommodate commercial customers' service needs as well as the military's stringent reporting requirements.

Building secured conduits on the Internet to facilitate electronic business transactions with suppliers, customers and co-contractors.

Designing data-gathering and -analysis systems to support sales and marketing efforts for commercial products.

cut across the entire defense industry, where the domestic market has diminished 64 percent since 1985. Worldwide, the aerospace sector has seen $20 billion in revenues evaporate since 1991, when sales peaked at $160 billion, according to Andersen Consulting.

Most aerospace manufacturers still derive 65 percent or more of their business from defense and more than 70 percent from domestic sources. The common goal is a more even balance between defense and commercial, domestic and foreign. But as aerospace touches down in unfamiliar territory, these companies are encountering rules of business utterly alien to their experience.

> *"We need to change on a large magnitude and within a short time scale the way we market and sell, develop and manufacture, and service our products and customers on a worldwide basis."*
>
> –JAMES WOODS

At Hughes Aircraft Co., says James Woods, staff vice president and CIO, "we need to change on a large magnitude and [within a] short time scale the way we market and sell, develop and manufacture, and service our products and customers on a worldwide basis." For the Los Angeles-based missile- and satellite-component manufacturer, which derives 67 percent of its business from defense, it's a matter of pure survival.

While defense cutbacks have been slow to affect Stratford, Conn., helicopter maker Sikorsky Aircraft Inc., the latest reductions struck four of Sikorsky's product lines. "We're not in trouble yet; we want to stay ahead of being in trouble," says Ed Krzysztalowicz, director of information management at Sikorsky, a division of United Technologies Corp. The effects are projected to be felt in late 1996 or early 1997, so Sikorsky is looking now for new business to brighten that gloomy forecast. One option is the S-92 commercial passenger helicopter, like the one described above, which Sikorsky hopes will prove a popular alternative to fixed-wing transportation serving Pacific Rim airports.

But Sikorsky and its fellows will find that commercial customers are a different animal from the traditional military/government buyer. Just ask Raytheon Co., the Lexington, Mass., maker of missiles, radar electronics and such nondefense products as Amana appliances. Raytheon wants to boost commercial-line profits from one-third of its total to about half. To do that, systems staff need a new mind-set.

"IT people serving the commercial businesses really have to be part of the marketing and sales strategies," something not customary in defense work, says Joseph P. McNamara, Raytheon's corporate director of IT. A customer-focused, competitive orientation must permeate IS action. To support Amana marketing efforts, Raytheon is developing systems for real-time sales-data gathering and analysis and field-service dispatching.

Unlike the government, commercial customers aren't willing to wait years for their products or pay premium prices. Where it once won contracts based on its reputation for high-tech quality, Hughes now finds it necessary to compete on price and turnaround time. As recently as two years ago, Hughes' lead time on custom satellites was 36 months. Today the company is receiving bids stipulating leads of just 12 months. Hughes' commercial satellite ventures include DirecTV, a satellite service that will beam programs into homes, and Spaceway, which will provide the nation with wireless video and phone service.

To cut costs and lead times, Hughes is investing $70 million in an enterprisewide product data management (PDM) architecture that facilitates data sharing across design, manufacturing and support functions for every product it makes. The PDM software, a $15 million package put together by Sherpa Corp. of San Jose, Calif., will be rolled out to 50 sites and 20,000 users linked by an asynchronous transfer mode (ATM) backbone and Ethernet. It will replace separate, incompatible systems with Unix servers.

To effectively respond to the needs of its commercial and international customers, Sikorsky is adopting agile manufacturing. This is a faster, more flexible manufacturing methodology that combines total quality management (TQM), work culture changes and world-class manufacturing techniques such as empowered teams. So far, the efforts have cut individual product lead times 25 to 70 percent. The overall goal is to chop aircraft lead time by more than half, to 12 months.

> *"The idea is to manufacture small quantities as cost-effectively as we once did large lots of aircraft."*
>
> – JOE MELE

Agile manufacturing will also help preserve profit margins as orders shift toward smaller product volumes and wider varieties. The company's commercial and international customers are not likely to order as many units of identical aircraft as the U.S. military was accustomed to.

COMMON THREADS

IS executives in industries undergoing dramatic change should:

Control internal IS costs by outsourcing or leveraging IT centers of excellence located in different divisions.

Put aside turf issues in merger situations to consolidate IT operations.

Support integration of engineering, manufacturing and other processes with interoperable systems. Hughes Aircraft invested in a product data management system that spans its engineering and manufacturing functions.

Set standards and install communications infrastructures to enable global operations.

Prepare for more joint projects with competing firms by building isolated and secure systems for joint access.

"The idea is to manufacture small quantities as cost-effectively as we once did large lots of aircraft," explains Joe Mele, manager of agile manufacturing at Sikorsky. "Our ability to deliver that depends on manufacturing being reactive to changing schedules and needs."

IT's contribution to this agility comes from architecture and mechanisms that promote efficiency, speed and flexibility. Sikorsky has implemented electronic data interchange for procurement and accounts payable, and it has deployed systems that scan parts as they arrive and send them directly to the factory floor for immediate use. The costs of carrying inventory for large aircraft assembly can exceed labor costs for some manufacturers, so a just-in-time approach can amount to significant savings.

Systems that support defense manufacturing, such as purchase-order applications and manufacturing resource planning (MRP), don't fly in the commercial business. When Rockwell International Corp. began selling its military satellite navigational chip sets to commercial vendors, it found it needed new support systems—even though the product was the same. IT had been providing data necessary for the government's exhaustive accounting, traceability and documentation requirements. Commercial customers don't share those needs. Instead, Rockwell needed an MRP system that could accommodate the higher-volume production of the chip sets necessary to supply multiple commercial customers, says James Sutter, vice president and general manager of IS in Seal Beach, Calif.

Hughes had been designing separate systems to support commercial projects, but as this type of business increases, it won't be practical or affordable to maintain dual applications, Woods says. PDM is the company's first major system designed to suit both defense and commercial

AEROSPACE AT A GLANCE

PAST

Aerospace manufacturers derived 90-plus percent of their business from the U.S. military. Multiyear contracts call for standardized, high-volume product and require intricate procurement and specification procedures. Competition is limited to a few major domestic players, and major contractors operate independently or with smaller subcontractors. Cyclical slumps are dealt with through layoffs.

FUTURE

Commercial and overseas markets represent half the manufacturer's business. Nonmilitary customers order small lots of product with a variety of customized features. Procurement rules have relaxed for government orders. Competition is based on price, and time to market is keener, particularly in commercial and overseas markets. In the U.S., major and minor contractors of the past have been merged, acquired or dissolved.

contracts. Its flexible, object-oriented design allows Hughes to define and reset system processes to match varying customer requirements at the start of each work project.

Many U.S. manufacturers have already mastered the intricacies of competing in global markets, but many aerospace firms are still groping here. Though it delivered 40 helicopters to Turkey last year, Sikorsky recently lost a bid in the Netherlands. "We need to learn to work better in the international arena," Krzysztalowicz says. Sikorsky faces entrenched competition from the likes of Eurocopter, and even Russia is moving in on the scene.

With an eye toward better global responsiveness, Hughes has retreated from its plan to co-locate design and manufacturing resources in the same area. Instead, material and human resources will be sited around the world where they make most sense. It will be up to IS to enable an "electronic co-location," where the information will move instead of parts and people. "The first step is to decide on IT standards internationally," Woods says. The broadband ATM is one such standard. Hughes is testing it now for backbone use.

With an eye toward better global responsiveness, Hughes has retreated from its plan to co-locate design and manufacturing resources in the same area. Instead, material and human resources will be sited around the world where they make most sense.

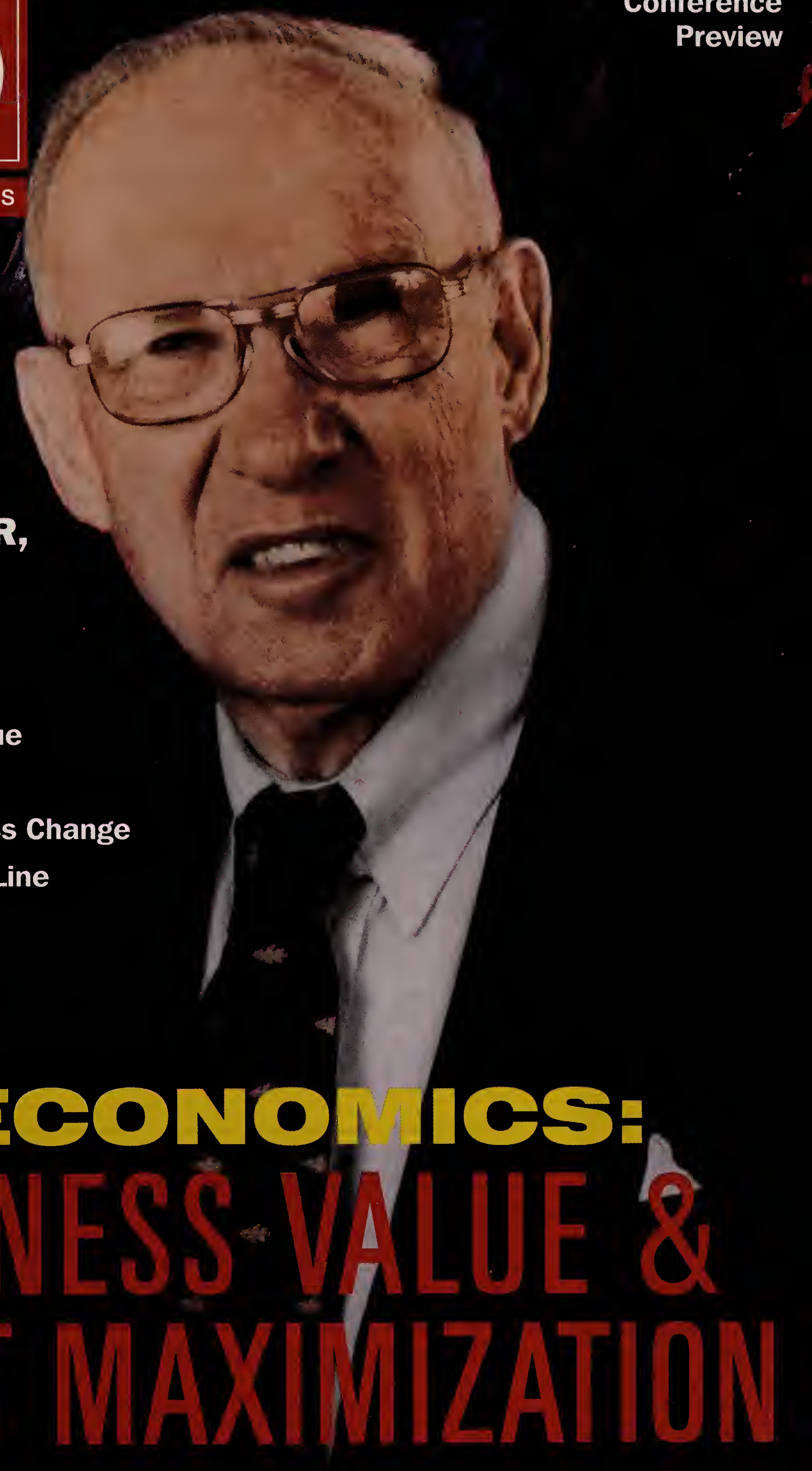
T**he quest for physical** cost-efficiencies has made electronic co-location an IS priority domestically as well. Because of work redistribution and plant closings associated with a series of layoffs, Raytheon's Patriot missile and other product lines are more dependent on cooperation between work teams at separate divisions. To permit products designed at one location to be built at others, Raytheon's information technology group is making the data accessible and shareable between the Patriot teams and between Raytheon and its military customers. In addition, it is also adopting a common suite of design and release tools, McNamara says.

Even with an increasing stake in commercial and global markets, most aerospace firms are loathe to give ground on the defense front.

CIO

PERSPECTIVES

Conference Preview



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The traditional business formulas used in technology assessment and reporting are becoming harder to define, as IT is no longer a supporting function but rather an embedded part of an organization's infrastructure. The new metrics must reflect value versus cost and create an even more complex role for CIOs. CIOs must not only measure systems and information value versus functional effectiveness; they must also demonstrate how the economics of IT support a higher enterprise ROI.

At the same time, as Peter Drucker, Clarke Professor of Social Science & Management, Claremont Graduate School says, even the most local businesses will increasingly operate in a world economy. The structure and strategy of the organization must therefore adapt or be out of sync with business value. *IT Economics* will tackle these tough issues and explore the consequences of ignoring Drucker's counsel.

CIOs must be able to:

- Use the best practices for techniques and technologies;
- Partner to deliver value;
- Shift from an internal to external focus;
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CONFERENCE AGENDA

Sunday, October 23

Conference Registration

Welcome Reception

Hospitality/Networking

Monday, October 24

Breakfast

Welcome & Opening Remarks

Joseph L. Levy
President & Publisher
CIO Publishing, Inc.

Improving IT Economics: Best Practices Makes Perfect

Dr. Jim Wetherbe
Conference Moderator
Director, MIS Research Center
University of Minnesota
Federal Express Professor of Excellence & Director, Center for Cycle Time Research
University of Memphis

Gearing Up the Bottom Line through IT

Arnold P. Cohen
Chairman & CEO
London Fog Corporation

Delivering Business Value: The Next Generation

Cinda A. Hallman
Vice President, Information Systems
E.I. DuPont de Nemours & Company

Managing Technology as a Business

Dominick J. Landi
Managing Director, Technology Production Services
J.P. Morgan

Luncheon

Small Group Discussions, Networking & Recreation

Reception

Dinner

Tuesday, October 25

Breakfast

Critical Success Factors in Managing Global Process Change

William E. Johnston
Director, Corporate Financial Systems Development
United Technologies

Phillip LaChapelle
Controller
Otis Elevator Corporation

Technology Leadership: One CEO's Commitment to IT

Jim Maxmin
Former Chairman
Laura Ashley Holdings, Plc.

Repositioning IT to Demonstrate Business Value

David MacPherson
Vice President & CIO
Del Monte Foods

Concurrent Sessions

Each Corporate Host will deliver a concurrent session presentation on a specific application or relevant topic.

Luncheon

Concurrent Sessions

Each Corporate Host will deliver a concurrent session presentation on a specific application or relevant topic.

The Future of the Corporation

Peter F. Drucker
Clarke Professor of Social Science & Management
Claremont Graduate School

Reception with Professor Drucker

Wednesday, October 26

Breakfast

Building the IT Charter through Internal Marketing

L. Paul Ouellette
CEO
Ouellette & Associates

Measuring the Business Value of IT

Akram Yosri
Information Technologies Institute
New York University

Leveraging Diversity as a Competitive Business Strategy

Hattie Hill-Storks
CEO
International Productivity Institute (IPI)

Mentally Tough: The Corporate Athlete

Dr. Jack L. Groppel
Executive Vice President
LGE Sport Science Center

Summary

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IT Economics: Business Value & Profit Maximization

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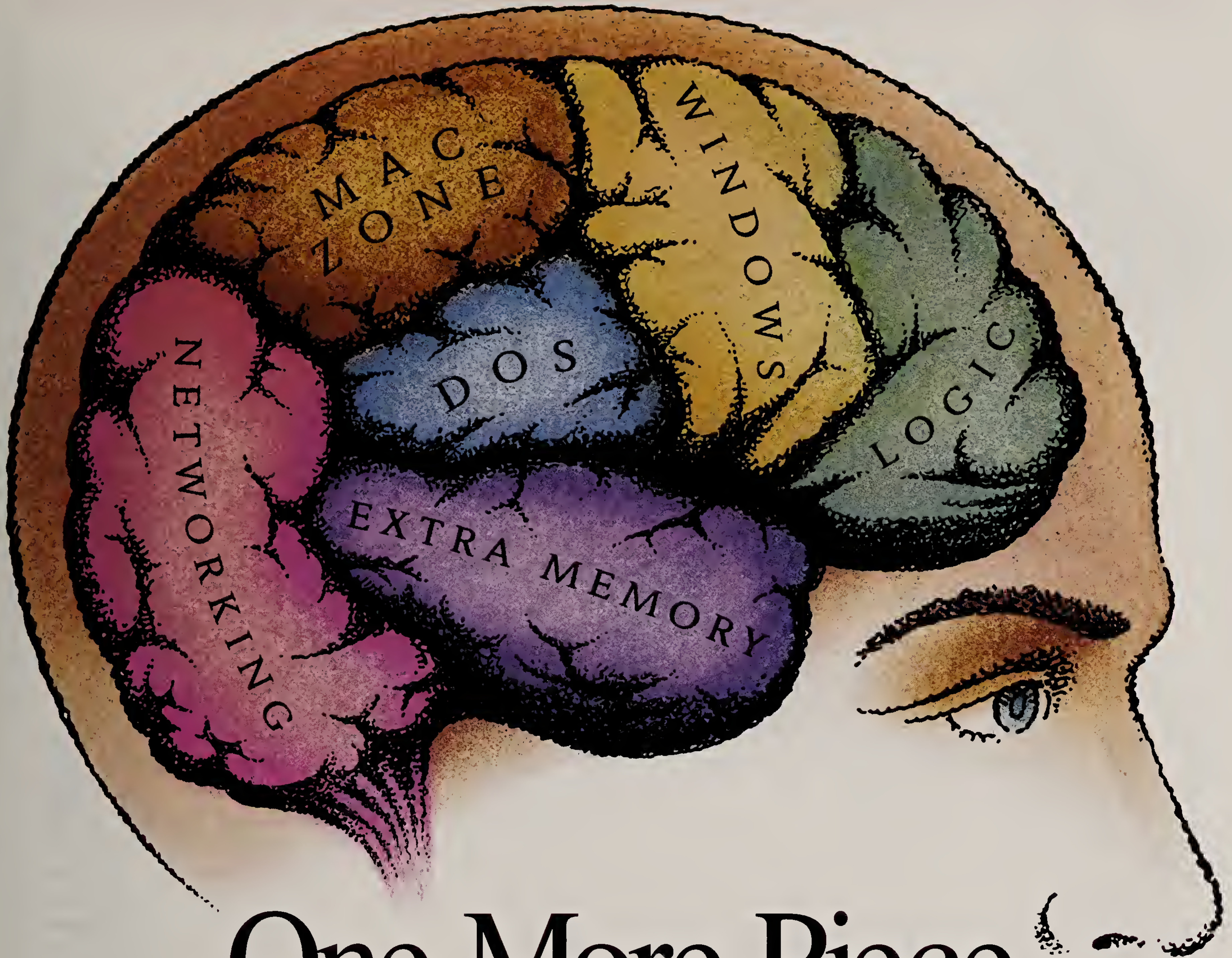

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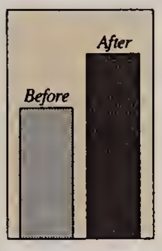

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But the reality is that there's less work to go around and, like kids down to their last candy bar, it's time to share.

Sikorsky teamed with The Boeing Co.'s helicopter subsidiary to produce the Comanche scout/attack helicopter for the U.S. military and is now applying this partnering experience to commercial ventures like the S-92. It was once uncommon for primary cotractors to team up on anything smaller than a space station. But partnerships can win contracts by leveraging respective resources to lower costs.

> *For its venture with Boeing, Sikorsky developed discrete business systems for planning management. These isolate joint project data from competitively sensitive information.*

I**S groups have** played a big role in making team-ups viable, particularly in establishing secured communications networks. For its venture with Boeing, Sikorsky developed discrete business systems for planning management. These isolate joint project data from competitively sensitive information.

After developing a secure electronic data interface to its military clientele, Raytheon adapted the same technology to the Internet, according to Jerome Satkus, manager of telecommunications engineering. The Internet interface will be used to swap data with project partners and commercial customers and enable other electronic business transactions. The company also plans to post some of its own requests for proposals on Internet bulletin boards.

U.S. manufacturers hoping to snare foreign contracts must also team with overseas firms. Sikorsky's S-92 will be designed and supplied with parts by a globe-spanning virtual-company partnership. The tricky part for IS will be supporting this international collaboration. "We will be the hub and data repository for the project," Krzysztalowicz says. "We're now trying to determine the rules for standards of design and exchange of information across many time zones."

Pressing partnerships to the extreme, some aerospace firms have taken refuge in each other's arms, merging to expand their holdings in the dwindling defense market. The stakes are high: Witness the tussle between Martin Marietta Corp. and Northrop Corp. for control of Grumman Corp., a major Navy jet aircraft contractor (Northrop won the bidding war).

In fact, the recent upsurge in earnings of larger defense contractors is due primarily to acquisitions and internal cost cutbacks. But the potential of such mergers depends on the combined firm's operating costs being less than the sum of the parts, says Carleton Kilmer, managing partner of industrial products at Andersen Consulting in Boston. To achieve this, the combined IS organizations must put aside turf issues to collapse systems, procedures and physical facilities.

Probably the most common IS ramification in any industry under assault is the push to pare costs within the function. Aerospace IS has not escaped the squeeze. Raytheon's information technology systems group has shrunk about 40 percent since two years ago, when it was responsible only for voice communications. With the addition of data-communications and distributed-computing oversight, the 20-person staff has gained new status and clout. "But there's still tremendous pressure to keep the numbers down," McNamara says.

O**ne way Raytheon** is economizing is to leverage technical centers of excellence around the organization. This saves divisions from each having to invest in many categories of technology expertise. As the separate divisions increasingly cooperate on projects, they will be more comfortable trusting technical expertise originating elsewhere in the enterprise.

Outsourcing is another cost-cutting option recently finding favor in aerospace. "Defense is maybe five or six years behind the commercial industries in the outsourcing cycle," Kilmer says. Before, these companies could justify high IT processing costs by charging it back to the government, he says. That won't work in the more competitive, cost-conscious commercial and foreign markets.

Most recently, Rockwell's Space Systems division, the primary space-shuttle contractor, outsourced to Software Maintenance Specialists (SMS) of Santa Ana, Calif. SMS will take over mainframe processing for all key business and engineering release systems, configuration management and logistics support for shuttle flights. The move was prompted by the need to reduce costs to bolster competitiveness at the Downey, Calif., Rockwell division.

Outsourcing can reduce costs, but it should not be used as a strategy to raise quick cash by selling off assets. IT must retain its internal expertise, for the day is steadily approaching when we commute to town in helicopters or pilot the smart highways using missile navigation chips in our cars. Opportunities like these will keep aerospace firms aloft, provided that IS is there to cushion the turbulence.

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I.T. For Two

Mergers and acquisitions mean that two formerly separate organizations must begin to function as one. Banking is one industry where it's often up to IS to make that happen.

BY MEGAN SANTOSUS

Banking may still be thought of as a decidedly button-down industry, but the spate of mergers and acquisitions (M&As) in recent years suggests that individual firms are anything but stodgy when it comes to preparing for the future. Driven by business and competitive considerations, individual banks and bank-holding companies—which manage groups of banks—are moving aggressively to merge with peers of equal size or to snap up smaller, local institutions. Adding fuel to the M&A fire is an interstate banking bill now pending before Congress; if enacted, as many industry watchers expect it will be, more consolidations will undoubtedly follow. Among other things, the bill does away with the restriction barring individual banks from setting up branches across state lines. (Currently, bank-holding companies must establish separate banking companies in each state where they conduct business.) With some companies already scrambling to position themselves for nationwide banking, volatility might just be the new industry watchword.

UNIFYING PRINCIPLES

"Banks are fairly similar from one to another in regard to [their] systems. The nitty-gritty applications or portfolios may vary from bank to bank, but the business processes are similar. Organizations outside of the banking industry that are more alike than different face many of the same consolidation issues."

—Susan Cohen, senior analyst of computing strategy, Forrester Research Inc.

Such volatility makes life a lot more interesting for the people responsible for managing a bank's IT infrastructure—to say the least. While achieving economies of scale, entering new markets or expanding product offerings are the motivation behind most M&A decisions, it often comes down to the IS department to make sure that two formerly separate—and sometimes very different—organizations function as one.

The IT infrastructure at a typical multibillion-dollar bank-holding company consists of a variety of computing platforms, sophisticated telecommunications, ATM networks and core software systems that link geographically dispersed sites. Getting a handle on such an infrastructure following a merger or acquisition is complicated, particularly when both organizations involved are in the same business and have good systems at the outset.

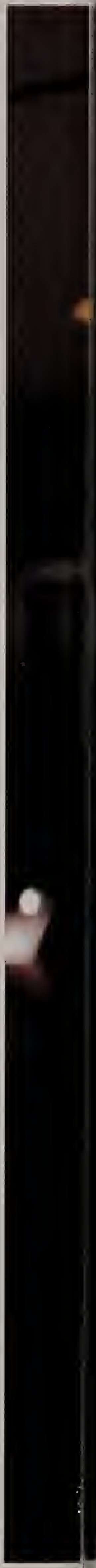


PHOTO BY ROGER MASTROIANNI

ALLEN GULA: *"When you double your size overnight, your whole world changes."*

THOMAS ASH *keeps one eye on the future when evaluating acquired banks' technology.*

PHOTO BY SONNY WILLIAMS

"When there are very good systems on both sides, it's hard to decide objectively which applications are better," explains William M. Saubert, director of the financial institutions practice at Arthur D. Little Inc., in New York. "It's easy when systems are bad because then they can be scrapped."

Another fact that can complicate matters for IS is that a merger can result in an organization that is very different from the sum of its parts. "If you grow by 10 to 20 percent, that's one thing," says Allen Gula, president and CEO of Key Services Corp., in Cleveland. "But when you double your size overnight, your whole world changes."

Gula's group is the IT and operations subsidiary of KeyCorp, a $60 billion bank-holding company that was created in March when KeyCorp and Society Corp. joined forces. Prior to the merger, both companies were about the same size and even shared many of the same core systems, including those for time and demand deposit, installment loans and commercial lending. "The goal was to end up better combined than we were separately," Gula explains. "We spent a lot of time looking at where the strengths and weaknesses were in each organization. In essence, this is a case of one plus one equaling three as we try to marry the service capability with strong systems." (See related story, below.)

In addition, large bank-holding companies must often strike a delicate balance between maintaining corporatewide standards and allowing local banks some flexibility to serve niche markets. For example, the eight affiliate banks of Banc One Corp. generally maintain a uniform product mix, but they do have the ability to determine their own prices and offer unique products for their particular markets. Ongoing management of an infrastructure that has to be organic in nature is an enormous challenge, one that can test the mettle of any IS department.

Consolidating Assets

In the merger of Society and KeyCorp, teamwork and communication played a key role in the development of an integrated infrastructure

When KeyCorp and Society Corp. announced plans to merge last October, one priority was putting together a management team that would figure out what to do about the IT infrastructure. "We had to organize for a much larger company," explains Allen Gula, president and CEO of Key Services Corp., the IT and operations subsidiary of what is now KeyCorp, a $60 billion bank-holding company headquartered in Cleveland. (The merger was finalized March 1 of this year.) "We were going to double our size almost overnight, so we had to look at each other's systems and select those that would survive in the new organization."

The new management team included staff members from both organizations. "The first thing we did was make it clear that politics and turf issues wouldn't be tolerated," says Gula, who worked for Society before the merger. "This had to be a team effort, so we told everyone that the company train was leaving—if they didn't want to get on it, they had to get out of the way."

About two months into the transition process, 50 senior team members convened in Cambridge, Mass., for a two-and-a-half-day meeting with Ernst & Young. Gula believes that the decision to gather at a neutral site was critical to promoting a sense of teamwork. "We broke up into groups and developed a plan as we went," he says. "By the end of the first day, it was impossible to tell which company a person came from." As an added benefit, Gula believes that the meeting also resulted in more buy-in from team members because they participated in the creation of the infrastructure plan together.

Deciding how to integrate the infrastructures as quickly as possible was only one of several primary issues the team discussed during the meeting. "The strategies of the two banks were somewhat different, and we knew there would be some holes to plug up," Gula says. For example, the old KeyCorp used to buy and install off-the-shelf software, whereas Society tended to customize pack-

JIMMY MAYER: *Chemical Banking has been consolidating systems into centralized sites.*

PHOTO BY KENT HANSON

As banking companies concentrate on consolidating their IT infrastructures, another very real danger is ignoring emerging technology. As the president and CEO of SunTrust Service Corp., the IS subsidiary of SunTrust Banks Inc. in Atlanta, Thomas G. Ash has had to wrestle with this problem. "Sometimes you can spend so much time trying to evaluate systems that you tend not to look ahead," he says. SunTrust Banks, with assets of $40 billion, has been pursuing M&As since 1986 and will continue acquiring smaller banks in an effort to expand market share. "It's very important that infrastructure decisions are based on the ability to bring a particular system or technology into the next generation," Ash asserts. "We evaluate systems from functional and efficiency standpoints as well as their ability to help us serve our customers."

When Chemical Bank merged with Manufacturers Hanover in 1991 to create the Chemical Banking Corp., based in New York, both concerns were in the process of consolidating their infrastructures by eliminating large processing centers and moving to centralized sites. Manufacturers had been automating the operation of its mid-range systems while Chemical was doing the same with its mainframe operations. According to Senior Vice President Jimmy Mayer, Chemical simply decided to go with whichever approach was further along. "Where there were differences from an infrastructure point of view, we concentrated on eliminating duplications in both functionality and application portfolio," he says.

While financial and business issues provide the impetus for most M&As, Saubert advises that technical issues should be taken into consideration up front. "Banks look at things such as asset quality and the size of the deposit base when deciding on mergers," he explains. "Technology may not be the driving reason for doing a merger, but it is an important factor of whether the initial financial goals will be achieved."

ages. Although the new KeyCorp had opted for a best-practices approach to selecting systems, Gula reports that a considerable amount of process reengineering is still necessary. For one thing, KeyCorp's affiliates have an expanded geographic reach into 18 states, which creates challenges when it comes to such things as processing and transporting checks. The team also had to build an infrastructure that would support KeyCorp's future growth: In a few years the company may once more double in size. And in light of such growth, the members discussed how they could help the new company generate additional revenues.

Gula and his staff "view this as an opportunity to take the combined organization to a different level," he says. "While there are negatives as well as positives, we are confident we can handle anything that comes up."

–M. Santosus

Susan Cohen, a senior analyst of computing strategy at Forrester Research Inc., in Cambridge, Mass., agrees. CIOs, she argues, should be as involved in evaluating potential merger candidates as the CEO and CFO. "When trying to gauge a company's value, taking into account how efficiently and effectively it operates is just as important as looking at things such as earnings per share or equity ratios," she explains. "It behooves CIOs to make the business case that mergers or acquisitions don't just involve buying another bank's products or expertise but its technology assets as well." (See related story, below.)

In the case of a large bank acquiring a smaller one, the technical strategy tends to be relatively clear-cut. "Converting the acquired bank's systems to those of the larger bank is pretty much the trend," says Saubert. But this is not to say that the infrastructure and processes of an acquired bank should be automatically scrapped. Take the case of Fleet Financial Group, a $48 billion bank-holding company based in Providence, R.I. Since merging with the equally sized Norstar in 1988, Fleet has acquired several smaller banks and now operates throughout the Northeast. At the time of the merger with Norstar, Fleet devised an architectural plan that called for a common set of applications, centralized data-processing and network facilities, and maximum consolidation of operational sites given time and geographical constraints. While the overall architectural philosophy has remained the same, Dave Sheppard, CEO of data-processing subsidiary Fleet Services Corp., reports that his staff has come to recognize that the systems and processes of an acquired organization merit in-depth evaluation. "We've found that there is something valuable brought forth from every single acquisition," he says. "From both large and small banks that have been acquired, we've always taken something back to the whole organization."

> *"Technology may not be the driving reason for doing a merger, but it is an important factor of whether the initial financial goals will be achieved."*
>
> *–William M. Saubert*

Members of Sheppard's staff make up part of the Fleet team that evaluates acquisition targets. In addition to looking at the data-processing capabilities, applications, hardware and operational sites of a target company, the IS members examine banking products and individual operational groups. "Then we make some conclusions as to how we'd adjust in terms of our infrastructure," Sheppard says. "Once we've reached the point where we know what we have to do, we make sure we communicate it to everyone." Sheppard believes that talking about these issues early on in the conversion process instills a

True Diligence

Any evaluation of a target company's assets should include its technology, and that means the CIO should be involved early

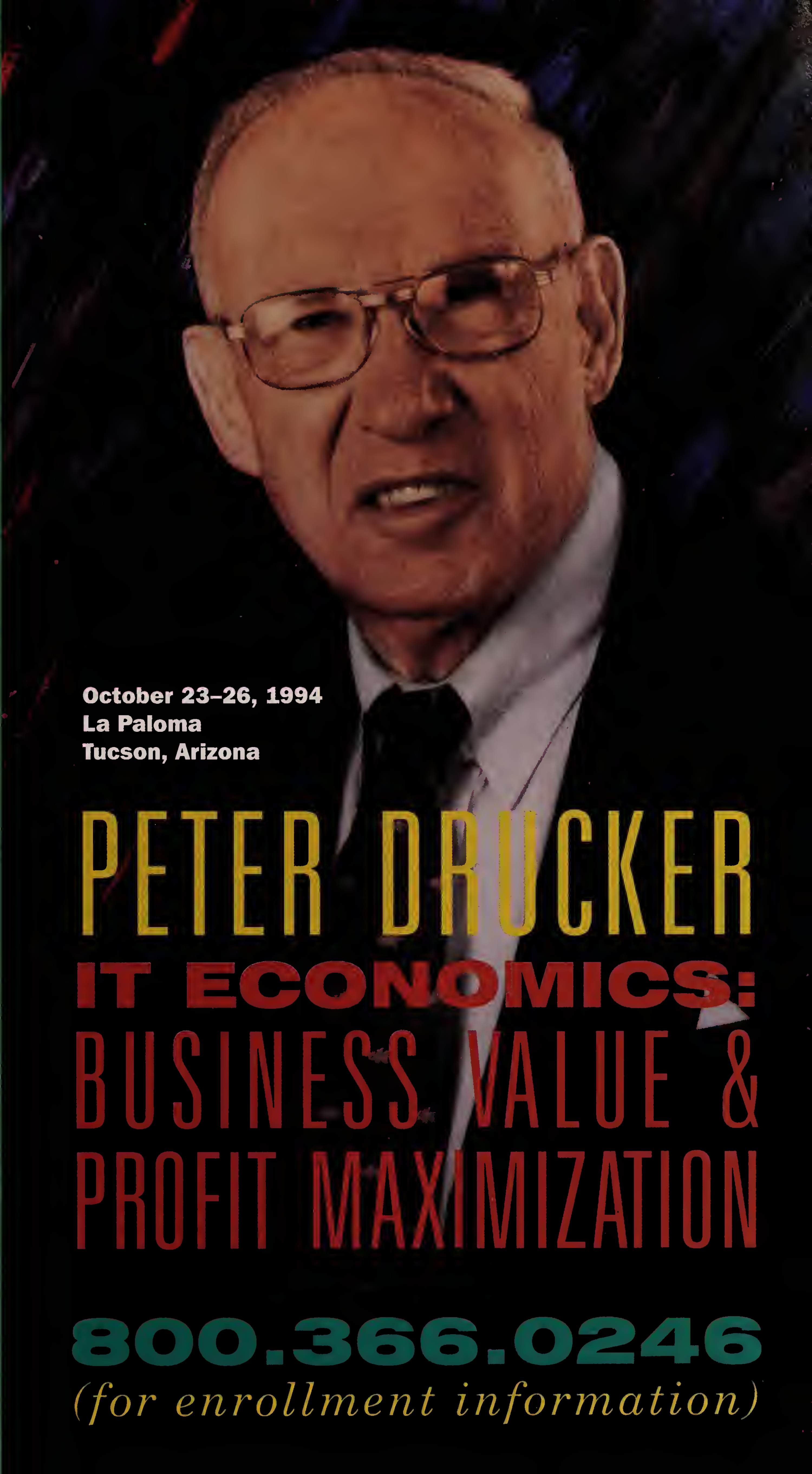
Too few CIOs are involved in initial M&A discussions or evaluations, according to Susan Cohen, senior analyst of computing strategy at Forrester Research Inc., in Cambridge, Mass. "The vast majority of technologies don't interconnect with each other very well, and it's next to impossible to integrate them rapidly," she says. "If an acquirer wants to achieve business synergy or economies of scale, it just can't be done quickly, and CIOs are faced with the fallout."

Cohen believes that CIOs should try to assess the IT infrastructure of a target bank as soon as talk of a merger or acquisition is in the air. This can be accomplished fairly quickly by making a thumbnail analysis of technology, including platforms, networks, databases and software systems. Pay particular attention to the age of the software and the number of databases, Cohen advises. "If the applications are more than 15 years old and if there are myriad databases, you know there will be problems."

It's also important to get a sense of the quality and consistency of data assets because integrity problems can sabotage any conversion or integration project. Another important area to consider is the skills of the IS personnel at the target organization. If the staff is primarily skilled in Cobol, CICS (Customer Information Control System) or IMS (Information Management System), for example, and the parent bank's infrastructure is based on client/server technology, considerable time and resources might be necessary for retraining.

"The condition of the IT infrastructure will help or impede the process of two banks becoming one company," Cohen says. If integrating the two turns out to be more problematic than anticipated, "all the initial assumptions regarding the time frame for realizing benefits will be out the window."

–M. Santosus



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DAVE SHEPPARD: *Nothing stays the same for very long.*

PHOTO BY WEBB CHAPPELL

sense of trust among both his internal staff members and those from the acquired organization because everyone knows what to expect.

Banc One has grown into an $80 billion bank-holding company by acquiring banks less than one-third its size. To bring newly acquired banks online with corporate systems, the parent company has established a management team that does nothing but work on conversions. To date, the team has worked on 110 systems conversions. "Our philosophy is to share and compare among our affiliates and pick the best of the best," says Robert Barrett, president and chief operating officer of Banc One Services Corp., the processing subsidiary of the Columbus, Ohio-based company. Like Fleet, Banc One carefully examines how the IS department at a target bank operates and thoroughly documents processes and procedures. The conversion team is always on the lookout for anything that can be applied throughout Banc One's affiliates. As a result, it works to fully understand the infrastructure of a target bank by comparing its applications with Banc One's core systems. Says Barrett, "We do run across some things that we're not doing at all or ways to do things differently." For example, an optical storage system used by one affiliate to replace microfiche for archival reporting is now being implemented throughout Banc One.

> *"We've found that there is something valuable brought forth from every single acquisition."*
>
> *–Dave Sheppard*

NOTABLE PLAYERS

The following are a few of the banking companies that have undergone mergers or acquisitions in recent years:

- Bank of America and Security Pacific
- C&S/ Sovran and NCNB
- Chemical Bank and Manufacturers Hanover
- Fleet and Norstar
- KeyCorp and Society
- Sun Banks and Trust Co.

Primary source: Veribanc Inc., Wakefield, Mass.

Regardless of the ever-changing infrastructure, everyone seems to agree that the success or failure of an M&A comes down to people. Conversions or consolidations will only work when representatives from both organizations are involved. "Each conversion has an executive steering committee made up of bankers and systems people," says Barrett. "This way, we get our affiliate banks to buy in because the conversion process belongs to them."

The ability to deal with uncertainty and adjust to changing business environments is essential for any IS department in the banking industry today. "Our internal staff has to deal with a high degree of change because nothing seems to stay the same for very long," says Fleet's Sheppard. And Ash of SunTrust says his biggest challenge by far is "building a solid team to take us into the future." CIO

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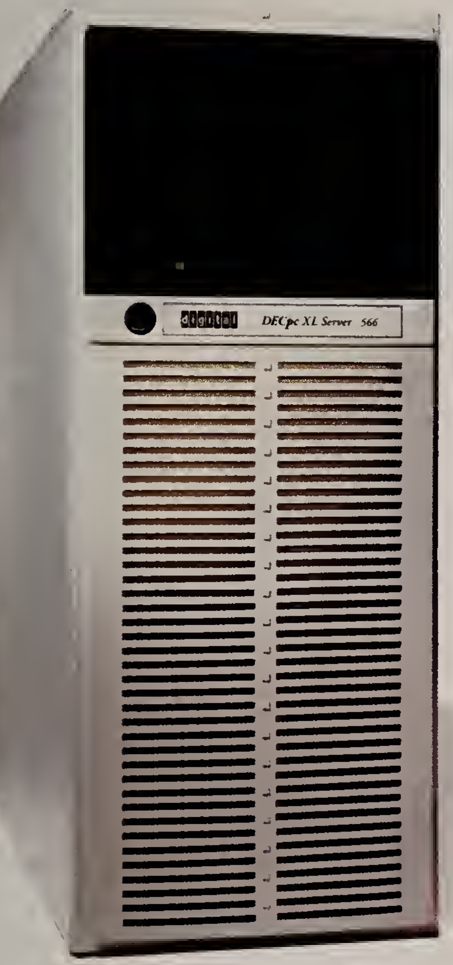

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Going Places

An effective logistics operation does a lot more than keep the trains and trucks running on time. Companies looking to make improvements in this area are turning to a variety of software tools for help.

BY JOHN EDWARDS

According to the dictionary, "logistics" is how organizations handle the flow of goods, services and information from one place to another. But what the dictionary fails to tell us is how an organization can plan, implement and administer logistics technology quickly and cost-effectively. For help in that area, management must turn to logistics software.

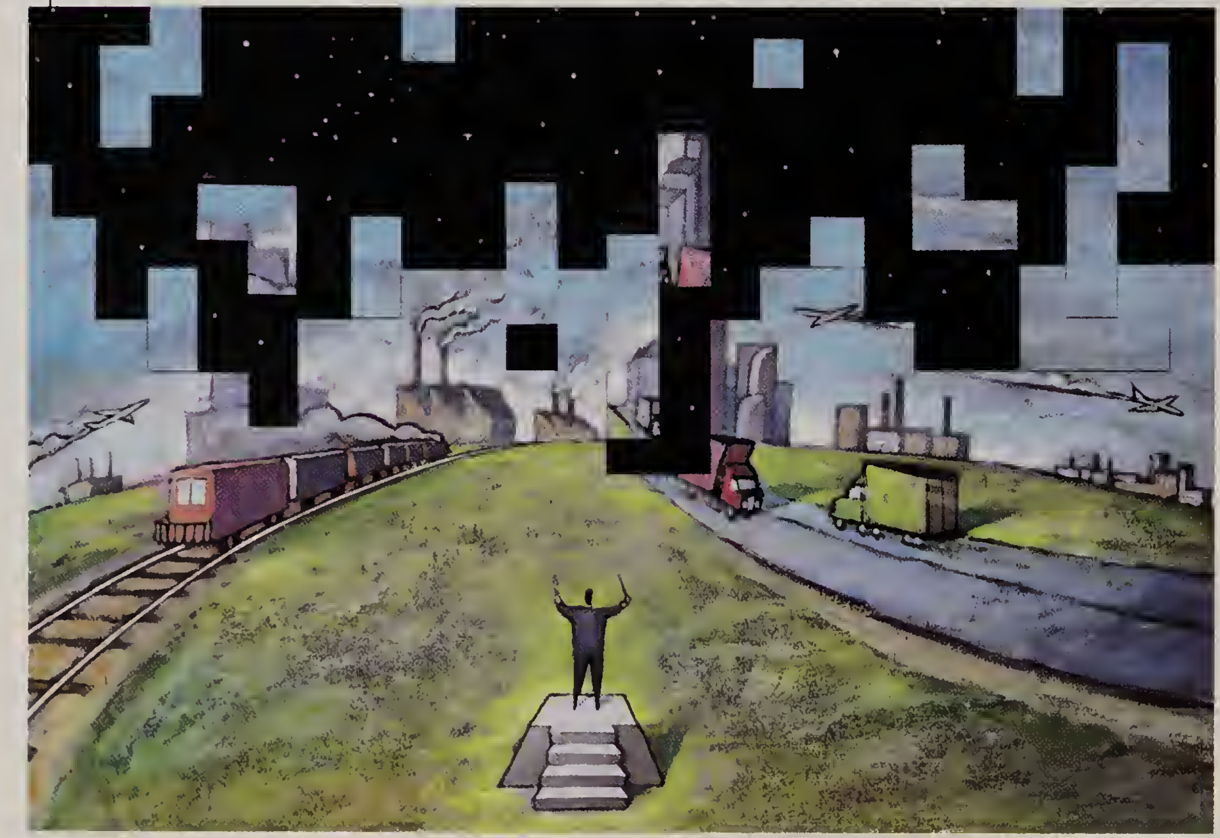
Companies are acquiring logistics software in order to cut costs and get a leg up on the competition. Reengineering logistics operations can help manufacturers and distributors cut excess inventory, streamline distribution efforts and enhance customer service. Having an efficient logistics operation has become a strategic concern for many firms, particularly in the electronics, general manufacturing, automotive, electrical-goods and consumer-products industries.

Tony Baer, senior industry analyst at Advanced Manufacturing Research Inc., a market-research company in Boston, says that logistics software can help users minimize the amount of inventory in the pipeline and reduce the time it takes for goods, services or information to reach their destinations. "Logistics software can be a critical factor for companies in a wide range of fields," he says.

Logistics systems also create added value for customers and allow lower costs, shorter lead times and greater profit potential, according to David Simbari, president of Industri-Matematik Inc., the Tarrytown, N.Y., subsidiary of Swedish logistics-software vendor Industri-Matematik AB. He states that customers value convenience, reliability and support, and that logistics software can help to maximize these critical services.

Simbari adds that logistics have traditionally been taken for granted and are often undermanaged. "It's been on the back burner for most companies," he notes. "Many people, particularly warehouse and transportation managers, have been reluctant to have anything to do with computers." Simbari believes that in many organizations, it's up to the CIO to convince these people that logistics systems are a practical technology.

Two broad categories of technologies are used in logistics operations, according to H. Donald Ratliff, a UPS professor of logistics at Atlanta's Georgia Institute of Technology as well as co-founder and CEO of Caps Logistics Inc., a software vendor also based in Atlanta. Transactional-software products track inventory, follow the movement of vehicles and provide various information-capture, -storage and -manipulation capabilities. Decision-support tools help users decide where to locate a facility, which type of shipping carrier to use for a particular product and what the most efficient routes are. "Vendors offer products with various



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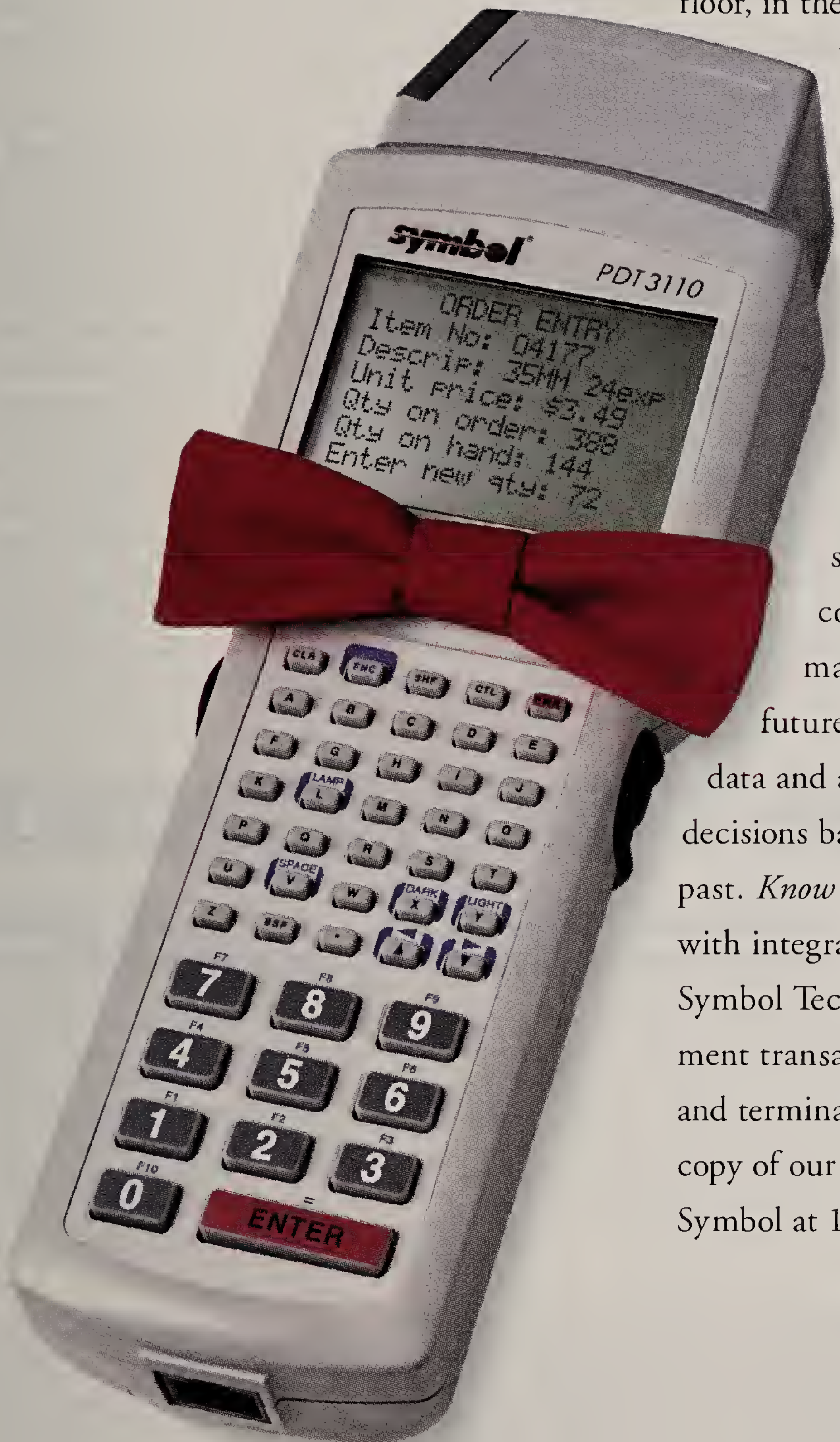

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centage of revenues for most companies, are normally in the area of 8 to 13 percent," he says. "So if you can get a 20 percent savings, that's a substantial margin increase."

Logistics software can also assist enterprises in the internal management of materials at a specific site, such as a warehouse, says John Capobianco, director of business applications for Computer Associates International Inc. The Islandia, N.Y., software company publishes CA-Warehouse BOSS, a warehouse-management system for IBM AS/400s.

Capobianco notes that it's just as easy for materials to become lost or delayed while moving around inside a distribution facility as it is on the road. He points out that internal logistics management can help reduce order times and increase shipping accuracy while controlling all the operational aspects of a warehouse, including receiving, locating, order-pool management, picking, product replenishment and shipping.

> **"Four or five years ago, people weren't sure if logistics outsourcing was a fad or not. Most are now convinced that it's for real."**
>
> *–Paul Chapman*

At Robert Bosch Ltd., the British subsidiary of the Germany-based automotive- and industrial-equipment supplier Bosch Group, CA-Warehouse BOSS helps manage the 3,000 orders the company receives daily from over 400 customers, according to Capobianco. The software has helped Bosch technicians design a system for the best placement of warehouse stock: fast-moving items in a central location and slow-moving items at the far end of the storage area. CA-Warehouse BOSS allowed the company to cut the number of people needed to pick an order from three to one.

An effective logistics strategy goes beyond managing transportation and warehouse stocks to involve every aspect of serving the customer, from marketing and order generation through order handling and post-sales service, according to Industri-Matematik's Simbari.

The Consumer Products Group of Bristol Myers Squibb Co., based in Stamford, Conn., is using Industri-Matematik's System ESS Unix-based software to streamline its order-management process. By pulling together existing and previously inaccessible customer-order information, the system gives service representatives access to information that can help them do their jobs more efficiently. On order entry, the representative can price the order, determine its inventory status and apply rule-based scenarios to determine, for example, a customer's eligibility for discounts or allocation of scarce

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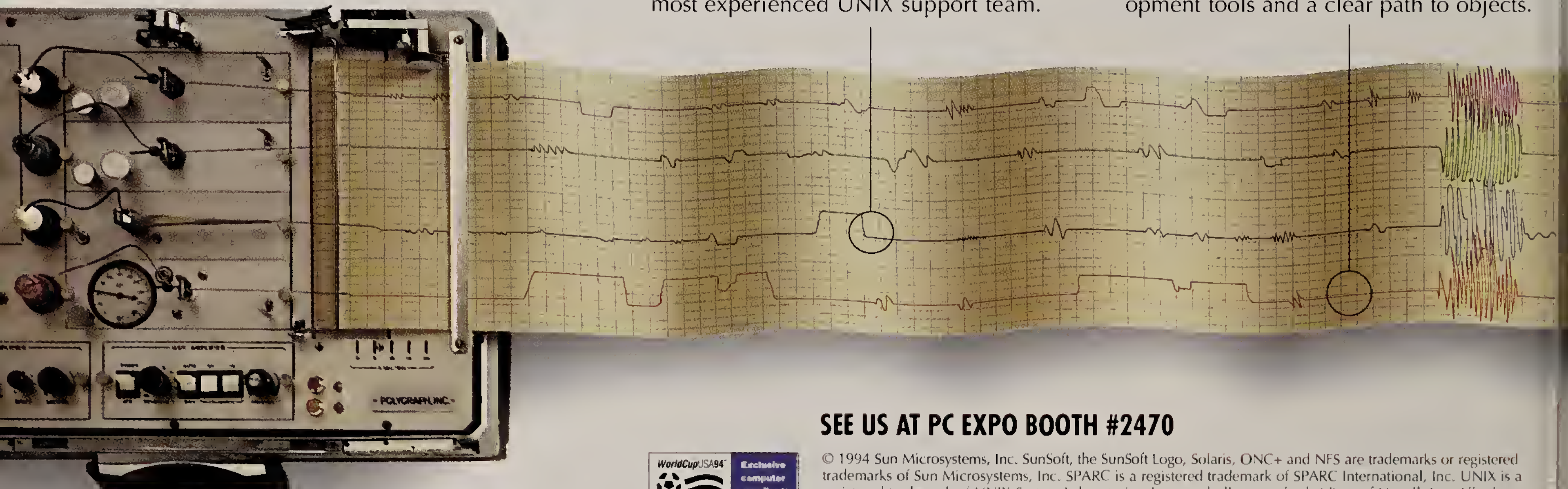

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names, but they all essentially boil down to these two types," he says.

Ratliff observes that the two categories often overlap, with transactional applications providing some decision support and vice versa. As a result, he says, it's important for the prospective buyer to find the product that most closely matches the needs of his or her organization.

An effective logistics strategy goes beyond managing transportation and warehouse stocks to involve every aspect of serving the customer.

The development of powerful desktop computers has fueled the use of logistics tools. "Many of the processes that were only achievable in batch mode—the kind of things you would run once every four weeks over a weekend—you can now run on your workstation almost immediately," says Brenda Dietrich, manufacturing logistics research manager at IBM's Thomas J. Watson Research Center in Yorktown Heights, N.Y. Less-costly hardware is also making logistics technology more affordable to smaller organizations and, in the case of multiple-site enterprises, allows logistics planning to be distributed out of headquarters offices and into the field.

Many companies' logistics applications now incorporate maps that show users the precise position of products, customers and vehicles, as well as streets, rail links and other points of interest. "Graphics help users visualize the flow of products and get a better handle on the overall situation," Ratliff says.

For example, using the Caps Logistics Toolkit, Coca-Cola Enterprises Inc. of Atlanta recently developed a map-based system to help its distributors evaluate local sales routes and selling patterns. Coca-Cola's ATLAS (Analysis Tools for Logistics and Sales) system encodes each sales center's outlets onto an electronic map that includes street-level detail. ATLAS's route-planning tools give area managers the graphical and statistical-analysis capabilities needed to refine sales territories and improve the patterns by which salespeople call on customers. Such features as one-way streets and divided highways are incorporated into the map when developing the local dispatching structure. Over the next 18 months, Coca-Cola plans to implement ATLAS at each of its U.S. distributors.

Organizations that restructure delivery operations with state-of-the-art software can expect to reduce their total logistics costs by 10 to 20 percent, according to Paul Chapman, an associate partner in the logistics practice at Andersen Consulting in Boston. "Logistics costs, as a per-

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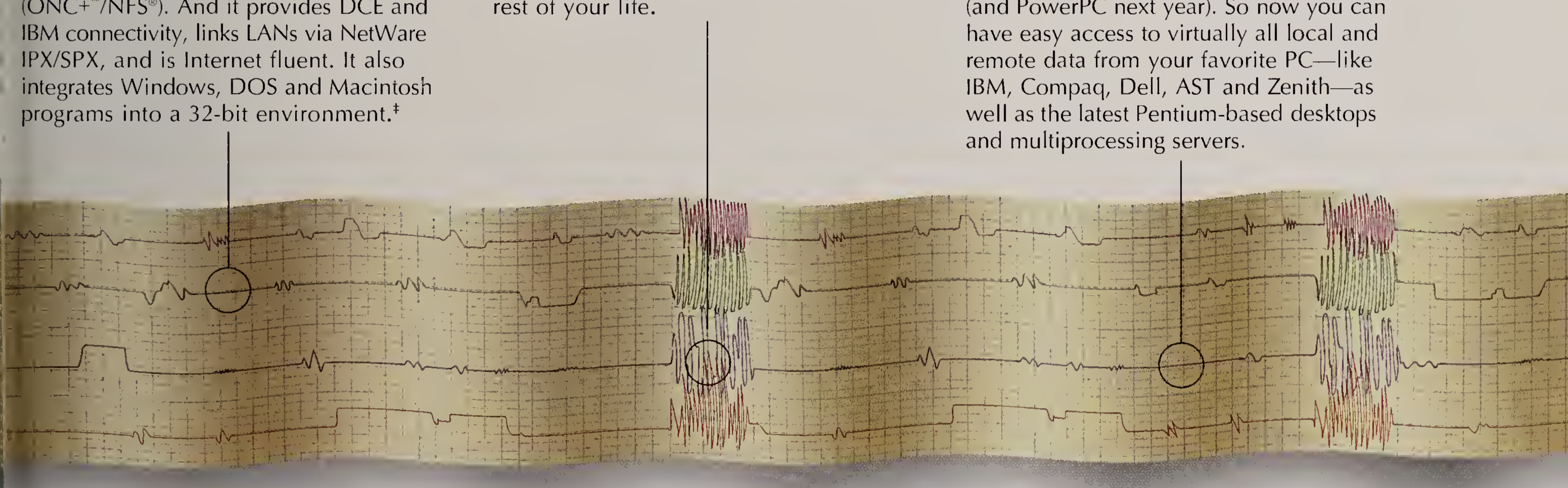

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products. The approach helps reduce cycle times in order processing because the order can be prepared before any information is sent to the warehouses. Having fast access to the information also improves the management of inventory levels.

Analyst Baer feels that the balance of power in the manufacturer-retailer relationship has shifted from the manufacturer to the retailer in recent years, particularly when the retailer is what Baer describes as a "category killer"—a dominant market force such as Wal-Mart Stores Inc. When dealing with such an enterprise, says Baer, suppliers have no alternative but to embrace a logistics policy that includes support for just-in-time (JIT) inventory strategies and, eventually, point-of-sale transaction accounting.

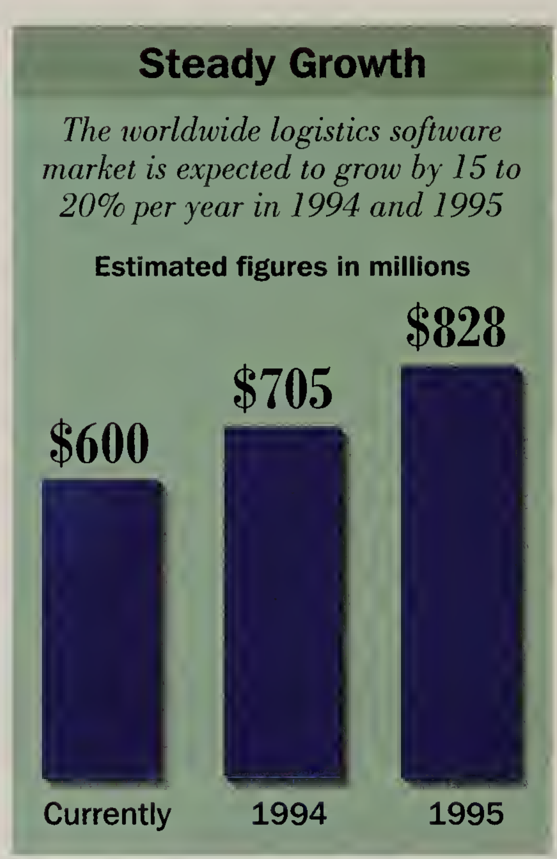
But Baer is skeptical about the value of some of the recent innovations in the logistics field, particularly point-of-sale data collection for inventory management. "There's a question of how clean that data is," he says, noting that a checkout clerk may pass a single can of tuna-flavored cat food over the scanner five times when the customer has, in fact, purchased five different flavors. "Still, potentially, it's a gold mine of data that can show all parties involved what's moving where and when."

The relative advantages of custom logistics software versus off-the-shelf products is the subject of an ongoing debate within the industry. The advocates of custom products, developed either in-house or by an outside consultant, maintain that each organization's needs are unique, so that only a specially developed product can provide a full solution. But commercial developers claim that their packages are adaptable to meet the requirements of a wide range of users.

Computer Associates' Capobianco says that the products provided by logistics consultants are usually "shell programs" modified to meet the demands of a particular client. "I don't think there really is such a thing as a custom-developed logistics solution when you're buying from a consultant," he says. He also points out that because organizations' logistics needs change over time, a custom application is just as vulnerable to obsolescence as a commercial product.

But many companies still opt for in-house development, says Georgia Tech's Ratliff, who notes that fourth-generation modeling languages make the process easier than ever.

Another significant trend is logistics outsourcing. By outsourcing, organizations gain the benefits of the latest technologies without incurring the up-front expense of acquiring new systems and dedicating employees to the work, according to Andersen Consulting's Chapman. Third-party agents can provide basic and advanced logistics support, including planning, scheduling, shipping and tracking services. Outsourcers can also advise their clients of delays or delivery changes and even negotiate rates with individual transportation carriers. "Four or five years ago, people weren't sure if logistics outsourcing was a fad or not," Chapman says. "Most are now convinced that it's for real. It's something that more and more companies are looking into."


Steady Growth

The worldwide logistics software market is expected to grow by 15 to 20% per year in 1994 and 1995

Estimated figures in millions

Source: Advanced Manufacturing Research Inc.

In the area of emerging logistics technologies, the Global Positioning Satellite (GPS) system has received plenty of attention in recent months. GPS allows organizations to track the precise location of trucks and other vehicles through a network of 24 satellites that orbit 11,000 miles above Earth. A module mounted inside each vehicle uses signals received from the satellites to compute its position to within a few feet. The data is then transmitted through a wireless network to a central office, where personnel use a map-based tracking program to follow the movement of vehicles locally, nationwide or worldwide on a minute-to-minute basis.

GPS technology can be useful for organizations that need to keep close track of their vehicles, says Baer. "As a shipper, I can ask myself: 'It's 11 p.m., do I know where my shipment is?' By looking at my computer, I can immediately uncover the answer."

But Ratliff believes that GPS technology is of little practical value for most shippers. "How many companies really have to know where a truck is at a particular instant?" he asks. "Perhaps package-delivery and emergency-service providers, but outside of these areas it really doesn't make a difference if a truck is stuck in traffic or whatever, because there's really nothing that you can do about it."

Another emerging technology being applied to the logistics arena is wireless mobile computing. Wireless systems allow organizations to cut shipping time and costs by integrating forms-completion procedures into the transportation process, says Baer. "Why waste time filling out bills of lading when you're at the dock?" he says. "Just load the stuff and enter things while you're on the road."

Ranga Jayaraman, senior manager of manufacturing at IBM's Thomas J. Watson Research Center, thinks the next five years will see a big change in the way businesses interact. "The change will be in people's perspective of the meaning of working with another company," he says. "People are going to recognize that [both companies will] win if they work in a partnership that shares intimately a lot of information and logistics tools. Suppliers and vendors working together in the same boat—that will be really revolutionary." CIO

John Edwards is a freelance writer based in Mt. Laurel, N.J.

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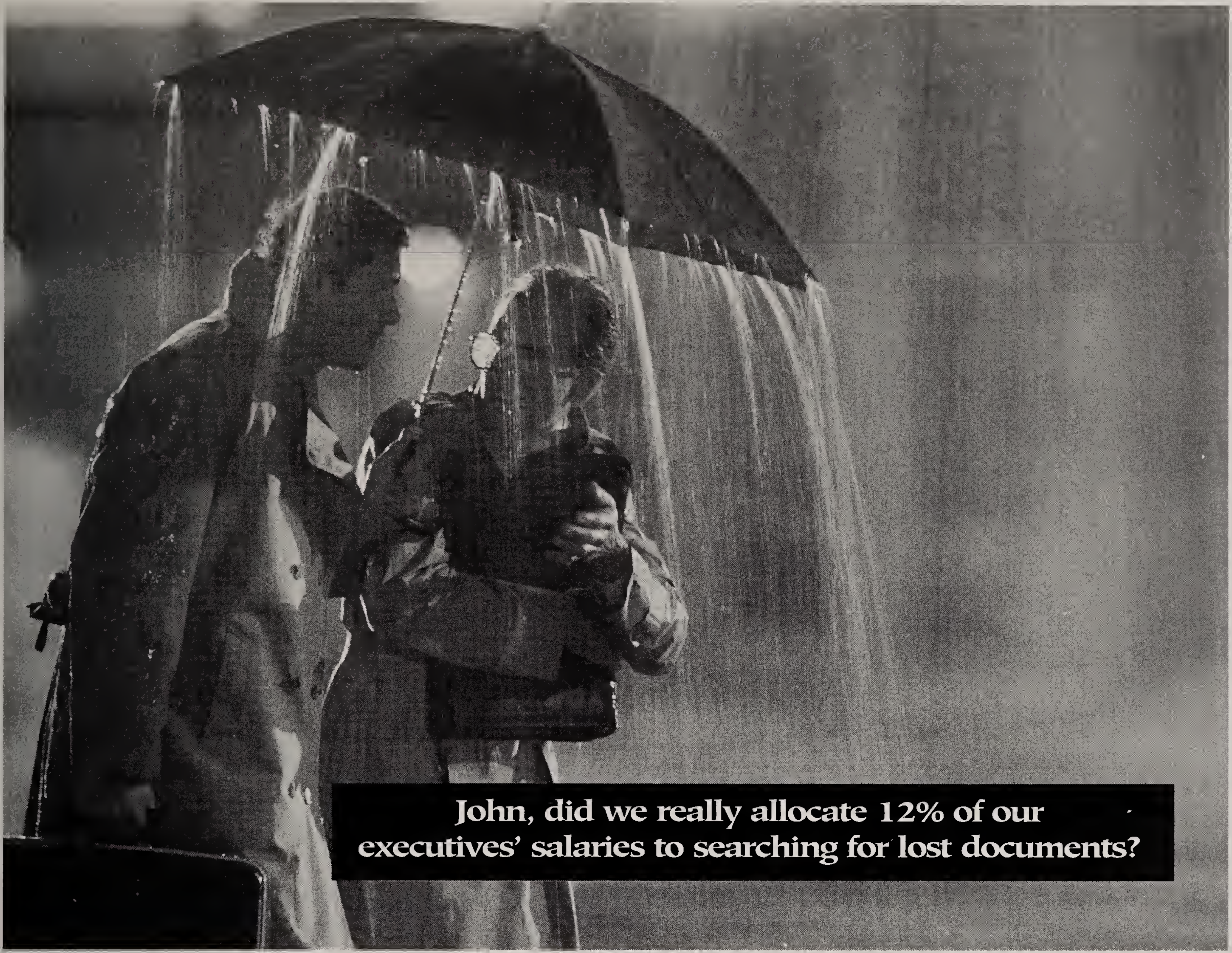
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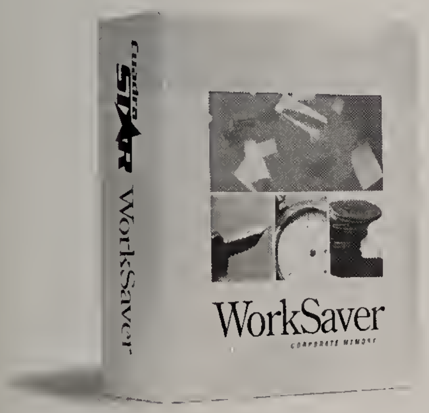

Continued from Page 80

He did very well. He said things like "global expansion" and "growth from $60 million to $200 million in six years" and "being able to satisfy any customer request independent of geography." Very few people in our room had heard of Dave's goals before, and there was some grumbling about "communication." But since we obviously had a technical problem and not a general management problem, we pressed on.

An encounter like this inevitably produces a roomful of historians. There was consequently no shortage of anecdotes of failure, missed opportunities and the horrible things people had done to one another. I find it useful during these nostalgic interludes to play dumb and to ask a lot of questions. Using the Socratic method to elicit highly detailed explanations of everyone's grievances makes nobody look especially good—which is useful as a way of humbling the complainants (a little humility can be helpful for what is to follow).

The only sure-fire way to turn people away from the past and toward reforming themselves into a team is to posit the existence of a perfect world. I recognize there's no such thing. But suppose there were.... Playing dumb again—it's harder than you think to be dumb on purpose; in fact, I do much better by not trying—I solicited from all the participants a complete description of how the world would have to work in order for the company to capture the marketplace and achieve its total objectives. ("Don't tell me what you can't do; just describe the ideal.")

We got a pretty good list of characteristics. And we elicited some curious comments ("If we knew that was what they needed, we could have built that years ago"). One general manager also admitted (with some prodding) that all he really cares about is what appears on the screen. How it gets there doesn't matter as long as he gets what he wants quickly and it works all the time.

The only sure-fire way I know to turn people away from the past and toward reforming themselves into a team is to posit the existence of a perfect world. I recognize there's no such thing. But suppose there were....

There's a lot of talk these days about legacy systems (which I define as "any systems that are not PC-based when you wish they were"). Everybody has them in one form or another, and they are definitely a poke in the eye with a sharp stick. We have plenty of legacy systems (since our company grew by acquisition). There are three different types: IBM Corp. in two flavors, AS/400 and S/390; and Digital Equipment Corp. Part of the reason the people in the room have been stuck is their inability to agree on which of the three legacies will endure. So, not only could they not get from the old to the new; they were still having religious wars over the advantages and disadvantages of the old.

BUT WE WERE MAKING PROgress. We knew what was needed, we agreed that what really mattered was what appeared on the screens, and we knew that what we had wouldn't work and that the business would fail without a change.

We were almost home—in large part because the people in the room knew all of these things together. One of the best things about new computer technology is that you can do just about anything you can conceive of. There are so many people working on solving problems that there is usually a solution to whatever you need to do. You may have to leave behind the familiarity of the systems you learned and know like the back of your hand, and you may have to forget some old "laws of nature." But on balance, things really are pretty good.

Thus, once we had thoroughly defined our problem, solving it technically was not quite the struggle some people had anticipated. We knew what the solution had to do: present easy-to-understand information on screens so that people could do their jobs better. We knew we had to implement it incrementally so that at each step people would achieve benefits they could understand and appreciate. We knew we were free to approach the solution in any way that worked—just as long as what appeared on users' screens met all their objectives.

In technical terms, this boiled down to building an icon/menu-driven front end to our older systems so that we could achieve new function regardless of how quickly (if at all) we could rebuild the legacy systems. Since what really mattered to the users was what appeared onscreen, we could show significant progress simply by substituting a single new and consistent "interface" for the three legacy systems.

So, do we know how to initiate a function in a PC front end to execute a job on another system and return the results? Of course. And do we have to rebuild the legacy systems and the front end simultaneously to achieve this? Nope.

The meeting eventually concluded, and the parties agreed to a plan. En route, we talked a lot—mostly about what the general managers really wanted and how the technical staff might be able to do little things—one at a time—which, taken together, would add up to big things.

The general managers are now convinced that they don't have to wait years to get utility from technology. They don't necessarily have to queue up for a reserved seat on the train.

W. F. Dyle is the pseudonym of a working CIO whose observations will appear regularly in CIO Confidential.

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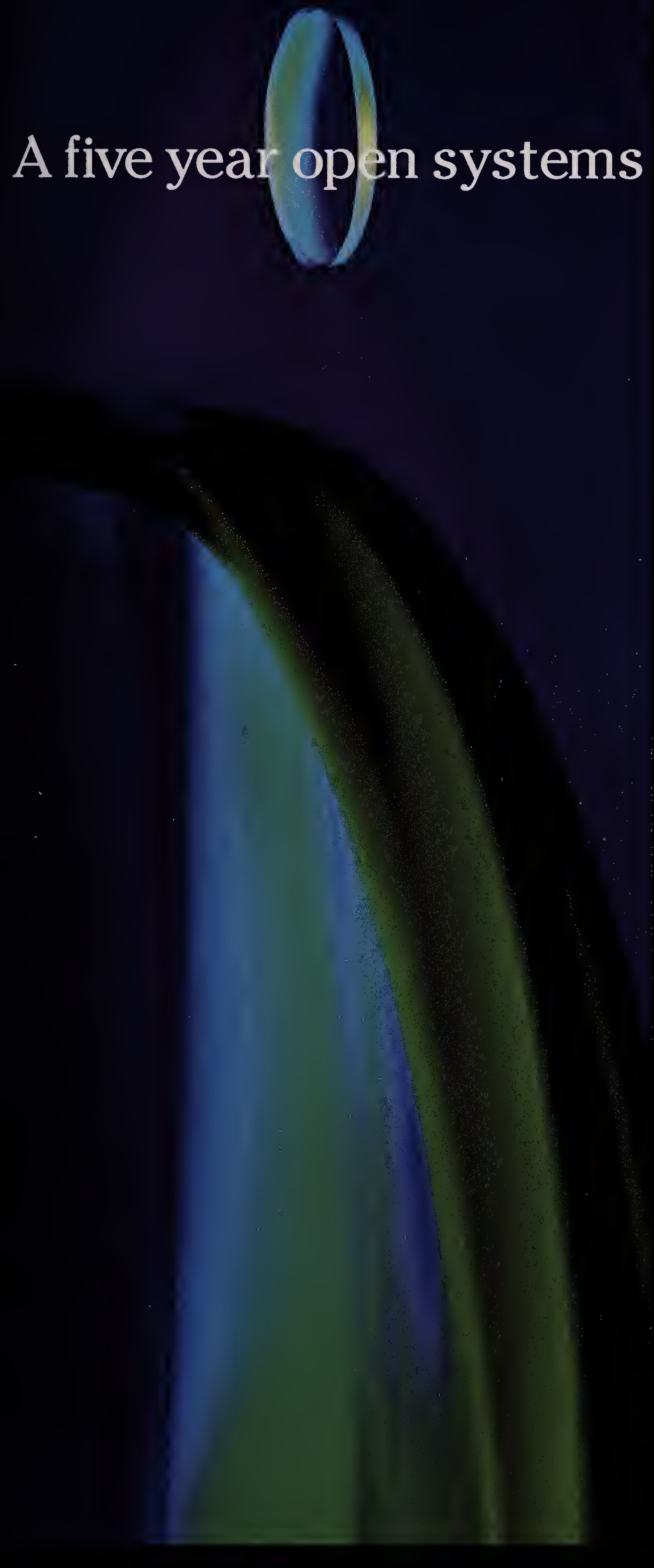

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[1] "The CW Guide to Servers," Computerworld, March 22, 1993 and "The CW Guide to Servers and Superservers," Computerworld, January 31, 1994.
[2] International Data Corporation, "Data General's Ascent in the UNIX Market," October, 1993
[3] "Clash of the Drive Arrays," PC Week, October 11, 1993

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CIO CONFIDENTIAL

A Locked Room of One's Own

BY W. F. DYLE

I'VE JUST SPENT A FEW DAYS locked in a room with some managers and technical people from a subsidiary business my company owns. They have been unable, up to this point, to agree on a plan that would enable the separate pieces of their business to operate as one. Their customers could care less that these separate pieces are different, and their competitors are beating them over the head with their inability to be more consistent from one piece to the next. Since each of the pieces has different computer stuff (the result of a company built by acquisition), this is as much a technical problem as anything else.

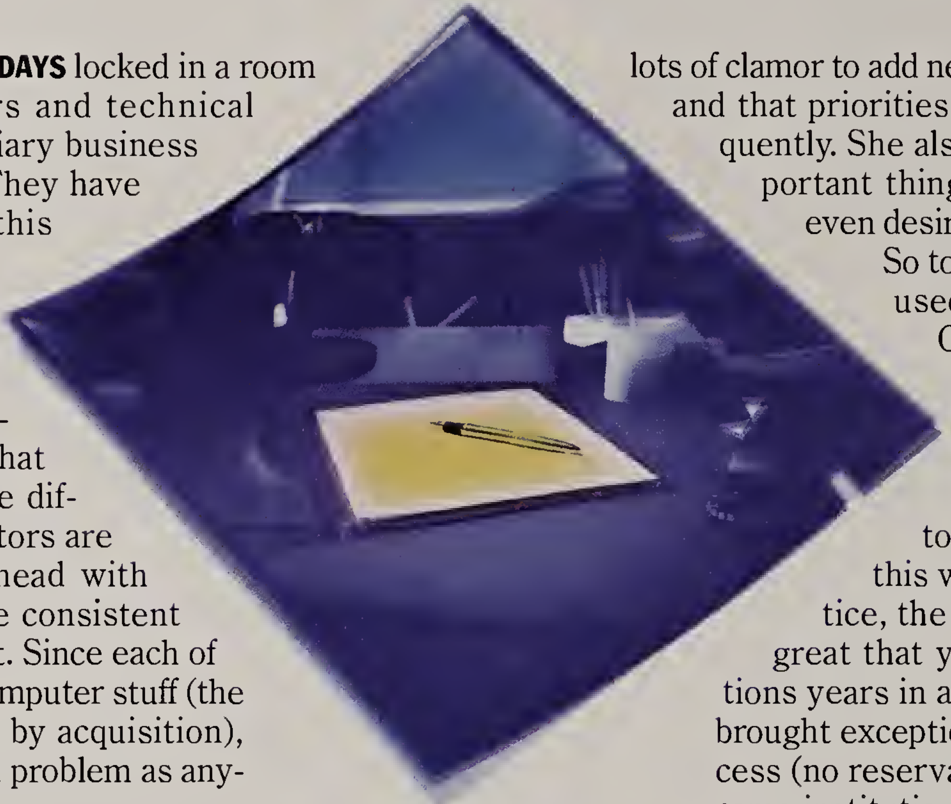

PHOTO BY JOHN RAE

As CIO, I usually like to lock everybody in the same room to work out difficulties like this. So that's what we did.

Strange things can happen in closed spaces. I quickly discovered that the top general managers and the top IT people had never shared space together, locked or otherwise. One of the more seasoned general managers soon declared that he had gotten nothing of any value from the technical crowd for the last three years. Nice start. (A few days later, a human-resources guy went for the gold, saying he hadn't gotten anything out of his technical staff for 10 years. You have to wonder what the technical people had been doing all that time.)

It occurred to me that the perceived ability of IT people to keep themselves fully occupied without doing anything of use to anybody was common enough not to be random. (OK, so maybe it's only a perception.) In fact, some years ago I was present at the birth of the methodology for remaining unusefully busy. It was invented by a manager in a computer company. This manager understood that there was lots of clamor to add new features to her product and that priorities for doing so shifted frequently. She also had her own list of important things to do—some of them even desired by customers!

It's a variation on the unifying effects of life in a foxhole. When people have long-standing differences, forced proximity can be a healing balm. Sometimes, leadership means locking the door and letting the fur fly constructively.

So to get control of things, she used the analogy of a train: Only so many trains could leave the station at a given time, she said, and if you wanted to be on board, you needed to reserve a seat. In theory, this wasn't a bad idea. In practice, the demand for seats was so great that you had to book reservations years in advance. But the strategy brought exceptional discipline to the process (no reservation, no seat). And it became institutionalized because it allowed for fixed expenses, few schedule disruptions and plans that most people could understand.

Unfortunately for this manager and her company's products, her customers also had a knack for analogies—such as trucks and Federal Express. They said things like, "No seat on the train for three years? OK, nevermind. We'll drive instead." The manager couldn't conceive of anybody possibly wanting to drive. But, then, think how few people used to do their Christmas shopping out of mail-order catalogs.

So, anyway, there we were, locked in that room. The first thing we did was get the senior executive of the unit—call him Dave—to state his goals clearly and unambiguously. He needed a little help because once people run into problems getting technology to work, they tend to forget what it was they set out to do in the first place. Instead they focus on how to do it. So, we got Dave to stay away from the "how" part and just help us with the "what."

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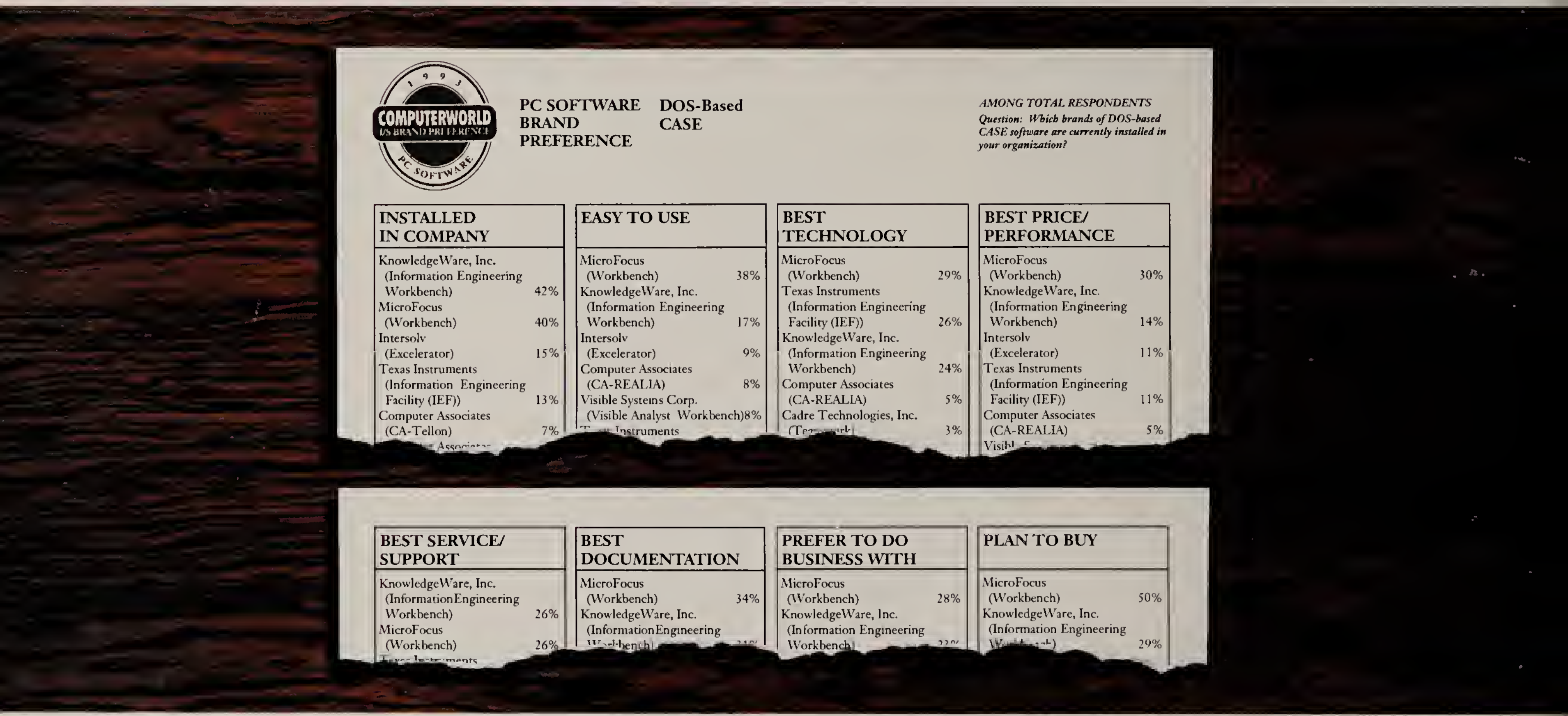

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Intersolv (Excelerator)	9%
Computer Associates (CA-REALIA)	8%
Visible Systems Corp. (Visible Analyst Workbench)	8%

BEST TECHNOLOGY	
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Texas Instruments (Information Engineering Facility (IEF))	26%
KnowledgeWare, Inc. (Information Engineering Workbench)	24%
Computer Associates (CA-REALIA)	5%
Cadre Technologies, Inc. (Te	3%

BEST PRICE/ PERFORMANCE	
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KnowledgeWare, Inc. (Information Engineering Workbench)	14%
Intersolv (Excelerator)	11%
Texas Instruments (Information Engineering Facility (IEF))	11%
Computer Associates (CA-REALIA)	5%

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